

EPA United States Environmental Protection Agency Washington, DC 20460 Work Assignment						Work Assignment Number 03-11				
						<input type="checkbox"/> Other <input type="checkbox"/> Amendment Number:				
Contract Number EP-C-15-012			Contract Period 08/01/2015 To 07/31/2019 Base Option Period Number 3			Title of Work Assignment/SF Site Name SRMD Radiochem Audit Support				
Contractor CSRA LLC					Specify Section and paragraph of Contract SOW 3.1.4					
Purpose: <input checked="" type="checkbox"/> Work Assignment <input type="checkbox"/> Work Assignment Close-Out <input type="checkbox"/> Work Assignment Amendment <input type="checkbox"/> Incremental Funding <input type="checkbox"/> Work Plan Approval						Period of Performance From 08/01/2018 To 07/31/2019				
Comments: In accordance with clause B.1 of the contract, immediate start is hereby approved for this work assignment beginning on August 1, 2018. If the work plan is not approved within 35 calendar days after receipt of the work plan, the contractor shall stop work.										
<input type="checkbox"/> Superfund Accounting and Appropriations Data <input checked="" type="checkbox"/> Non-Superfund										
SFO <input type="checkbox"/> Note: To report additional accounting and appropriations date use EPA Form 1900-69A. (Max 2)										
Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										
Authorized Work Assignment Ceiling										
Contract Period:		Cost/Fee:				LOE: 0				
08/01/2015 To 07/31/2019										
This Action:						2,610				
Total:						2,610				
Work Plan / Cost Estimate Approvals										
Contractor WP Dated:				Cost/Fee			LOE:			
Cumulative Approved:				Cost/Fee			LOE:			
Work Assignment Manager Name Michella Karapondo						Branch/Mail Code:				
_____ (Signature) (Date)						Phone Number: 513-569-7141				
						FAX Number:				
Project Officer Name Nancy Parrotta						Branch/Mail Code:				
_____ (Signature) (Date)						Phone Number: 202-564-5260				
						FAX Number:				
Other Agency Official Name						Branch/Mail Code:				
_____ (Signature) (Date)						Phone Number:				
						FAX Number:				
Contracting Official Name Donna Reinhart						Branch/Mail Code:				
_____ (Signature) 6/15/18 (Date)						Phone Number: 513-487-2114				
						FAX Number:				

PERFORMANCE WORK STATEMENT
CSRA EP-C-15-012
Work Assignment No. 03-11
Period of Performance: 8/1/18-7/31/19

I. ADMINISTRATIVE:

A. Title: SRMD Radiochemistry Audit Support

B. Work Assignment Manager:

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C. Quality Assurance:

Task(s) 1 in this Work Assignment (WA) requires quality assurance (QA). Consistent with the Agency's QA requirements, the contractor must prepare a complete Project Specific Quality Assurance Project Plan (PQAPP), to assure the quality of the data used under this WA. Work on this/these task(s) cannot proceed until the contractor receives notification of PQAPP approval from the Contract Level Contracting Officer Representative (CLCOR) via e-mail. The QA requirements must be addressed in the work plan and monthly progress reports as specified under Task 0, below.

D. Background:

The National Primary Drinking Water Regulations require public water systems to monitor for certain radiological contaminants, as per 40 CFR 141.26. To ensure data quality, as well as to fulfill requirements of 40 CFR 141.28, drinking water compliance samples must be analyzed by laboratories certified by the State or EPA, using promulgated methods found in 40 CFR 141.25 or their equivalent, as determined by EPA in accordance with 40 CFR 141.27, for analyzing samples for radiochemical contamination. The Office of Ground Water and Drinking Water, Technical Support Center, Laboratory Certification Program oversees the certification of laboratories analyzing samples for drinking water compliance monitoring. EPA Regions are responsible for determining the certification status for the state principal laboratory system in each primary state within the Region. One of the requirements for state primary enforcement

responsibility (“primacy”) under 40 CFR 142.10 is that states must have “laboratory facilities certified by the Administrator (EPA) and capable of performing analytical measurements of all contaminants specified in the State primary drinking water regulations.” Typically, EPA personnel from each Region have responsibility for conducting periodic laboratory audits of the state facilities to ensure laboratory capability and to grant certification to those laboratories. However, at this time, most EPA Regions lack the expertise to perform audits of laboratories performing radiochemical analysis of drinking water compliance monitoring samples. Effort provided by the contractor through this work assignment will provide EPA with technical expertise to conduct audits of radiochemistry laboratories and provide technical assistance to EPA to allow EPA to determine if those laboratories should be granted drinking water certification for the radiochemical analytical methods.

II. OBJECTIVE:

The purpose of this work assignment is to provide technical assistance needed by Office of Water, Office of Ground Water and Drinking Water, Technical Support Center, Laboratory Certification Program, to evaluate the capability of selected laboratories analyzing samples for radiochemical contaminants in drinking water and provide recommendations about the drinking water certification status of these laboratories to the appropriate State and Regional Certification Officers. To achieve this purpose, the contractor shall be expected to conduct on-site audits and data audits of laboratories performing radiochemical analyses of drinking water compliance monitoring samples, and provide recommendations in reports and checklists to EPA and the appropriate State and Regional Certification Officers. This project supports programmatic support needs related to our national all hazards homeland security responsibilities by ensuring technical capability of laboratories analyzing drinking water samples for radiochemical contaminants.

This work assignment supports the mission of the Water Security Division (WSD) as described in the Water Security Strategy framework, which relates resources, activities, outputs, audience, short- and long- term outcomes to the WSD pillars of Prevention, Detection, Response, and Recovery. Additionally, this work assignment contributes to the commitments made in EPA’s Strategic Plan: 2011 to 2015 and EPA’s Homeland Security Strategy (2004). Under EPA’s Strategic Plan, reference is made to Goal 2 (Clean and Safe Water), Objective 2.1 (Protecting Human Health), Sub-objective 2.1.1 (Water Safe to Drink), and to the Cross-Goal on homeland security. Under EPA’s Homeland Security Strategy, reference is made to Objective 1 (Critical Infrastructure Protection).

In support of these requirements, this contract supports the nation’s drinking and wastewater infrastructure, collectively known as the Water Sector, in being informed, coordinated, and prepared to prevent, detect, respond to, and recover from terrorist attack and other intentional acts, natural disasters, and other hazards (referred to as the “all hazards’ approach), which may also occur, including the needs and challenges posed by natural disasters, catastrophic events, adaptation and impacts of climate change, floods, earthquakes, pandemic illness, and any other events which impact the safety and availability of our water supply.

In pursuit of these efforts, the contractor may be tasked with preparing a correlation summary comparing the results under this work assignment to the components of the Water Security Strategy framework.

This work will be completed commensurate with Task 3.1.4, Laboratory Support Capabilities of the Contract Level PWS. The level of effort estimated for this work assignment is 2,610 hours.

III. TASK DETAIL:

The contractor shall perform the following tasks:

Task 0 - Work Plan Submission:

The contractor shall prepare a detailed work plan and budget for the accomplishment of the indicated tasks in accordance with the clause Work Assignments (EPAAR 1552.211-74). The work plan shall include a description of (a) proposed staff, (b) the number of hours and labor classifications proposed for each task, broken down to task level, to include both prime contractor and subcontractor labor, and (c) a list of deliverables, with due dates and schedule for deliverables.

In addition, the work plan shall specify that a Supplemental Project Specific Quality Assurance Project Plan (SQAPP) appending the Contract Level Quality Assurance Project Plan (QAPP) or a Project-Specific Quality Assurance Project Plan (PQAPP) is not required.

In addition, the contractor shall prepare a statement indicating that this WA is a continuation of WA 02-11. This task also includes monthly progress and financial reports, which are to be submitted pursuant to Attachment 2 of the contract. Monthly financial reports must include a table with the invoice level of effort (LOE) and costs broken out by the tasks in this WA. The monthly progress report shall indicate, in a separate QA section, whether significant QA issues have been identified and how they are being resolved. The contractor shall immediately notify the Project Officer and EPA WA Contracting Officer's Representative (COR) if any changes to the collection and analysis of the data is needed and prepare a PQAPP accordingly.

The contractor shall immediately alert the EPA WACOR to any anticipated event under the work assignment which may result in incurring an estimated \$20,000 or more cost, funded by EPA, specific to that event (e.g., meeting or training). Those costs would include travel of prime and consultant personnel, planning and facilitation costs, audio/visual, and rental of venue costs. The EPA WACOR will prepare approval internal paperwork for the event and will advise the contractor when appropriate signatures have been obtained. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

Deliverables: Work plan, PQAPP and monthly progress and financial reports.

Task 1 - Audits of Radiochemistry Laboratories

The contractor shall assess the facilities, equipment, and scientific expertise of state principal laboratories which analyze samples for radiochemical contaminants in drinking water and determine compliance with the requirements of Chapters 1, 2, 3, and 6 of the Manual for the Certification of Laboratories Analyzing Drinking Water, the radiochemistry drinking water methods in 40 CFR 141.25 and Appendix A to Subpart C of 141 as well as Alternate Test Procedure radiochemistry methods approved by OGWDW for drinking water. As directed by the EPA WACOR or designated Task Manager, the contractor shall perform on-site audits of up to twelve radiochemical laboratories, including but not limited to laboratories acting as the state principal laboratories of Alabama (commercial – Eberline, Oak Ridge, TN), Arizona, Arkansas, Georgia (commercial – Pace in Pittsburgh, PA), Kansas, Kentucky (commercial – ESC in Mt. Juliet, TN), Nevada, Oklahoma, South Dakota and Wisconsin. Additional laboratories will be identified by technical direction. If a laboratory acting as a state principal laboratory has been granted drinking water certification by a recognized state certification program, the contractor shall first assess documentation supporting that drinking water certification decision, including Laboratory Quality Assurance Plans/Manuals, Standard Operating Procedures, Proficiency Testing results and supporting data, and other related materials to determine if the certification decision meets the aforementioned requirements. If the supporting documentation does not meet the requirements of the drinking water certification program, the contractor may perform an on-site audit of the lab as directed by the EPA WACOR. The listing of laboratories is subject to change due to scheduling and resources. In performing these audits, the contractor shall make it clear to all laboratory staff that they are working as a contractor to the Environmental Protection Agency. The contractor also shall indicate that all questions of policy must be directed to EPA since the contractor cannot represent the Agency. (PWS Task 3.1.4, Laboratory Support Capabilities)

Contractor personnel performing radiochemical laboratory audits shall be familiar with Chapters 1, 2, 3, and 6 of the Manual for the Certification of Laboratories Analyzing Drinking Water, the radiochemistry drinking water methods and analytical requirements in 40 CFR 141.25 as well as Alternate Test Procedure radiochemistry methods approved by OGWDW for drinking water, and audit checklists and other information provided by EPA. Regional and/or State Certification Officers will accompany the third party expert during the on-site audit. The contractor shall coordinate with regional and/or state personnel and the laboratory to schedule time for each audit with concurrence of the EPA WACOR. Audits should be scheduled such that some audits can be grouped by location to assist in reducing travel costs. The contractor shall copy all correspondence to the work assignment manager, including correspondence between the contractor and the Regional Certification Officer, and correspondence between the laboratory and the contractor should also be copied to the Regional Certification Officer and the EPA WACOR.

Prior to the audit, as needed, the EPA work assignment manager will hold a pre-audit teleconference with the Regional Certification Officer and the contractor to discuss scheduling the audit and to identify Regional preferences in conducting the audit. Prior to the scheduled audit, the contractor shall send a pre-audit checklist to the EPA Region, who shall send the pre-audit package to the laboratory, allowing at least two weeks to respond. Example checklists can be found in Chapter 6 of the Manual for the Certification of Laboratories Analyzing Drinking Water. The contractor must either develop an audit checklist based on the

aforementioned requirements, or use a checklist provided by the EPA WACOR. Items on the audit checklist must provide references to Chapters 1, 2, 3, and 6 of the Manual for the Certification of Laboratories Analyzing Drinking Water, the radiochemistry drinking water methods and analytical requirements in 40 CFR 141.25 as well as Alternate Test Procedure radiochemistry methods. Checklists must clearly identify “findings”, or items found in the laboratory which conflict with drinking water regulations, including promulgated analytical methods and documents incorporated into regulation by reference, and “recommendations”, or items identified that are not conflicting with drinking water regulations or promulgated analytical methods, but the addition of which would improve the analytical capabilities of the laboratory being audited.

Prior to the audit, the contractor shall review or assist the Region in the review of the response from the laboratory to be audited for completeness. The contractor may call the laboratory to address missing or unclear items. The items to be reviewed prior to the audit could include Laboratory Quality Assurance Plans, personnel listings, proficiency testing (PT) results, and other laboratory data as applicable. If the items to be reviewed prior to an audit are insufficient or incomplete, the audit may be rescheduled while the laboratory provides a complete set of documentation. Audits should follow the protocols found in Appendix B of the Manual for the Certification of Laboratories Analyzing Drinking Water.

While on-site at the laboratory, the audit should include a brief opening meeting with laboratory personnel, and prior to leaving the laboratory, a closing meeting should be held to discuss with the laboratory any “findings” that will be discussed in the audit report. The EPA Regional certification officer shall lead the opening and closing meetings.

The contractor shall provide a written summary of the results of each audit, using guidelines provided by EPA. A copy of the completed audit checklist shall accompany each report. The report may include observations not included on the checklist. The contractor shall identify on the checklist findings and recommendations such that the Regional Certification Officer can draft an audit report. The summary report shall clearly identify “findings”, or items found in the laboratory which conflict with drinking water regulations, including promulgated analytical methods and documents incorporated into regulation by reference, and “recommendations”, or items identified that are not conflicting with drinking water regulations or promulgated analytical methods, but the addition of which would improve the analytical capabilities of the laboratory being audited. “Findings” and “recommendations” should be clearly referenced in the report to the appropriate section of the Manual for the Certification of Laboratories Analyzing Drinking Water, the appropriate section of the promulgated analytical method, or the section of the Code of Federal Regulations. The report may also identify “findings” where actual laboratory practices conflict with the laboratory’s own Quality Assurance Manual and SOPs; these “findings” should be clearly referenced to the laboratory’s Quality Assurance documents. The summary of the audit shall be written such that EPA Regions can utilize the material in writing a laboratory audit report to send to the laboratory.

In addition, the contractor shall clearly identify the analytical methods for which the laboratory and/or Region has requested certification, and the recommended certification status of each method shall be clearly identified in a summary report. Drinking water certification statuses

can be found in the Manual for the Certification of Laboratories Analyzing Drinking Water, in chapter 3, section 8. Reports shall be signed and dated by persons performing the audit. Reports shall be sent to the appropriate Certification Officer, as designated by the WACOR, and to the WACOR. Technical questions regarding the report shall be answered by the contractor with review and approval by the WACOR; policy questions regarding the report shall be answered by the WACOR.

Deliverables: Draft summary audit report, accompanying checklists, and a listing of analytical methods and recommended certification status for each method.

Task 2: Radiochemistry Technical Support.

The contractor shall provide technical support regarding the use of radiochemistry methods, radiochemistry applications, and related health physics concerns in support of laboratory certification or preparedness. The contractor shall maintain EPA's capacity to provide technical expertise by ensuring that the qualifications of assigned experts and technical response personnel meet the requirements of the Manual for the Certification of Laboratories Analyzing Drinking Water and current industry practices and standards. (PWS Task 3.1.4, Laboratory Support Capabilities).

Deliverables: Deliverables will be determined by the WACOR based on required response, and timing of such will be included on technical directives.

Task 3: Radiochemistry Auditor Training.

The contractor shall develop guidelines to assist Drinking Water Certification Officers in auditing radiochemistry laboratories. The contractor shall, in conjunction with the WACOR, develop text to be used in auditor training, including information on drinking water methods, instrumentation, auditing techniques, and criteria specified in the Manual for the Certification of Laboratories Analyzing Drinking Water.

Deliverables: Deliverables will be determined by the WACOR based on required response, and timing of such will be included on technical directives.

IV. SCHEDULE OF DELIVERABLES:

Specific deliverables, by Task, are detailed in the table below. All work will be determined by technical direction.

TASK No.	DELIVERABLE	DATE DUE TO EPA
Task 0 - Workplan Submission		
	Workplan and budget	According to contract
	Monthly progress reports	Monthly

Task 1 -	
On-site laboratory audits	To be determined by technical direction; an exact date cannot be determined prior to receiving stakeholder feedback
Draft Laboratory Evaluation Report and Checklist	2 weeks after audit of the laboratory

Task 2 -	
Technical support provided as requested per technical direction	As directed by EPA WACOR
Task 3 –	
Draft script for Certification Officer Auditor training.	June 30, 2019

V. MISCELLANEOUS:

Software Application Files and Accessibility:

Software application files, if delivered to the Government, shall conform to the requirements relating to accessibility as detailed to the 1998 amendments to the Rehabilitation Act, particularly, but not limited to, § 1194.21 Software applications and operating systems and § 1194.22 Web-based intranet and internet information and applications. See: <http://www.section508.gov/>

Preferred text format:	MS Word 8.0 or higher (Office 2007 or higher)
Preferred presentation format:	Power Point, Office 2007 or higher
Preferred graphics format:	Each graphic is an individual GIF file
Preferred portable format:	Adobe Acrobat, version 6.0
Preferred technology:	ESRI ArcGIS Desktop 10.4 or higher

The EPA WACOR shall identify which of delivered products will require 508 compliance.

VI. TRAVEL

The contractor shall anticipate up to twelve (12) contractor trips in support of this WA over the duration of the performance period. Travel will be directly related to the scope of this Work Assignment and support advancement of the work under Task 1, as well as the EPA's Mission to ensure protection of human health and the environment.

VII. MEETINGS, CONFERENCES, TRAINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than \$20,000, shall be obtained by the EPA CL-COR as needed and provided to the Contracting Officer (CO). Work under conference related activities and expenses shall not occur until this approval is obtained and provided by the EPA CL-COR.

VIII. CONTRACTOR IDENTIFICATION

Contractor personnel shall always identify themselves as contractor employees by name and organization and physically display that information through an identification badge. Contractor personnel are prohibited from acting as the Agency's official representative. The contractor shall refer any questions relating to the interpretation of EPA policy, guidance, or regulation to the CO, CL-COR and/or WACOR.

IX. PRINTING

All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

X. Technical Direction

The Contract level COR or an authorized individual is permitted to provide technical direction. Technical direction must be within the statement of work of the contract and includes: (1) Direction to the contractor which assists the contractor in accomplishing the Statement of Work, (2) Comments on and approval of reports or other deliverables. Technical direction will be issued in writing or confirmed in writing within five (5) calendar days after verbal issuance. One copy of the technical direction memorandum will be forwarded to the Contracting Officer and the Contract Level Contracting Officer Representative.

XI. QUALITY ASSURANCE SURVEILLANCE PLAN:

All task(s) identified in the performance work statement above are subject to review and approval by the EPA WACOR based on the general guidelines of the contract quality assurance surveillance plan (Attachment 4 of the contract) regarding: Programmatic, cost control, timeliness/deliverables, and document development standards.

EPA United States Environmental Protection Agency Washington, DC 20460 Work Assignment						Work Assignment Number 03-12				
						<input type="checkbox"/> Other <input type="checkbox"/> Amendment Number:				
Contract Number EP-C-15-012			Contract Period 08/01/2015 To 07/31/2019 Base Option Period Number 3			Title of Work Assignment/SF Site Name NHSRC Sam and Method Developm				
Contractor CSRA LLC					Specify Section and paragraph of Contract SOW 2.7, 2.8.1, 2.8.2, 2.8.3, 2.8.4, 2.9, 3.1.2, 3.1.4					
Purpose: <input checked="" type="checkbox"/> Work Assignment <input type="checkbox"/> Work Assignment Close-Out <input type="checkbox"/> Work Assignment Amendment <input type="checkbox"/> Incremental Funding <input type="checkbox"/> Work Plan Approval						Period of Performance From 08/01/2018 To 07/31/2019				
Comments: In accordance with clause B.1 of the contract, immediate start is hereby approved for this work assignment beginning on August 1, 2018. If the work plan is not approved within 35 calendar days after receipt of the work plan, the contractor shall stop work.										
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1										
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Authorized Work Assignment Ceiling										
Contract Period: Cost/Fee: LOE: 0 08/01/2015 To 07/31/2019										
This Action:						1,860				
Total:						1,860				
Work Plan / Cost Estimate Approvals										
Contractor WP Dated: Cost/Fee LOE:										
Cumulative Approved: Cost/Fee LOE:										
Work Assignment Manager Name Kathy Hall <div style="display: flex; justify-content: space-between;"> <div>_____ (Signature)</div> <div>_____ (Date)</div> </div>							Branch/Mail Code: Phone Number: 513-379-5260 FAX Number:			
Project Officer Name Nancy Parrotta <div style="display: flex; justify-content: space-between;"> <div>_____ (Signature)</div> <div>_____ (Date)</div> </div>							Branch/Mail Code: Phone Number: 202-564-5260 FAX Number:			
Other Agency Official Name <div style="display: flex; justify-content: space-between;"> <div>_____ (Signature)</div> <div>_____ (Date)</div> </div>							Branch/Mail Code: Phone Number: FAX Number:			
Contracting Official Name Donna Reinhart <div style="display: flex; justify-content: space-between;"> <div> <i>Donna Reinhart</i> _____ (Signature) </div> <div>6/13/2018 _____ (Date)</div> </div>							Branch/Mail Code: Phone Number: 513-487-2114 FAX Number:			

**Work Assignment (WA)
Performance Work Statement (PWS)**

**WSD Contract No: EP-C-15-012
Work Assignment WA-03-12**

Work Assignment Contract Officer Representative (WACOR):

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LOE: 1860

Period of performance: August 1, 2018 to July 31, 2019

Title: National Homeland Security Research Center Selected Analytical Methods for Environmental Remediation and Recovery & Method Development

WSD Contract SOW Areas: 2.7, 2.8.1, 2.8.2, 2.8.3, 2.8.4, 2.9, 3.1.2, 3.1.3, 3.1.4, 3.1.9, 3.1.10, 3.1.14, 3.1.17, 3.1.19

I. PURPOSE

The purpose of this work is to provide continued support for the Environmental Protection Agency (EPA) National Homeland Security Research Center (NHSRC) initiatives in updating the Environmental Sampling and Analytical Methods (ESAM) program including the Selected Analytical Methods for Environmental Remediation and Recovery (SAM) document; identifying, developing, and verifying analytical methods that can be used by multiple laboratories analyzing environmental samples during environmental remediation following a homeland security event; developing selected analytical and sample collection procedures; coordinating document reviews and revisions including compiling and responding to comments; facilitating procedure verifications; supporting an interactive web page including development and maintenance; and developing, revising and testing tools. These sampling and analytical methods and supporting documents, web page, and tools address the chemical, radiological, and biological analytes (CBR) listed in NHSRC's SAM document, and support EPA laboratory networks, including the Environmental Response Laboratory Network (ERLN) and Water Laboratory Alliance (WLA). Importantly, analytical methods verified under this Work Assignment (WA) shall be demonstrated to assure that their performance characteristics (e.g. accuracy, limit of detection and robustness) meet site remediation goals, i.e. site clearance, for re-occupation as existed prior to the contamination event. This project supports programmatic needs related to our national all hazards homeland security responsibilities of Securing and Sustaining Water Systems by protecting water systems from terrorist attacks and inadvertent disasters and detecting and recovering from successful attacks and the effects of

disasters by leading efforts to provide States and water utilities with guidance, tools and strategies.

To achieve this purpose, the contractor shall provide technical, analytical, study coordination, and computer support. NHSRC will continue to coordinate with subject matter experts involved in developing ESAM and SAM, including representatives from EPA Offices, EPA and State laboratories and representatives from the U.S. Centers for Disease Control and Prevention (CDC), Department of Agriculture (USDA), Food and Drug Administration (FDA), and U.S. Department of Homeland Security (DHS). NHSRC also will continue working with representatives from the Office of Solid Waste and Emergency Response (OSWER) and Office of Water (OW), where appropriate, to leverage and avoid duplication of existing efforts.

Under this work assignment, the contractor shall provide technical support to EPA's development of the ESAM program including SAM, SAM addendums and companion documents, development and verification of selected analytical and sample collection procedures and protocols, development and maintenance of an interactive web site, and development and verification of laboratory methods to identify and measure chemical, radiological and biological analytes included in SAM. The contractor will also provide support for EPA's MicroSAP tool, webpage, and associated documents. Contractor support will be required in the following areas:

- Data exchange, management, and review
- Single lab verification leading to multi-laboratory method validation studies
- Document development
- Document revisions. The contractor shall verify each document as drafted and conduct minor revisions as needed. If necessary, major revisions need to be promptly identified such that EPA can determine appropriate follow-on actions.
- ESAM program web pages modification and support
- MicroSAP tool revisions, maintenance and webpage and document development.

II. BACKGROUND:

After 9/11, EPA initiated an Environmental Response Laboratory Network (ERLN). The need to establish a network of laboratories to effectively respond to possible contamination scenarios resulting from terrorist attacks was identified as a national vulnerability. EPA will be responsible for the analysis of a large number of environmental samples in a short period of time putting a large demand on the nation's laboratory systems with respect to capacity and capability. NHSRC has the responsibility to research analytical methods to support the laboratories in measuring the many possible CBR agents that could be used in such attacks. Along with its partners, EPA has developed a document, *Selected Analytical Methods for Environmental Remediation and Recovery* (SAM) that compiles analytical methods which can be used during the remediation phase of cleanup. EPA is also working on additional documents such as collection procedures, companion documents, and analytical protocols which support the SAM. This work is designed to help assure analytical methods exist to quickly and accurately identify selected agents and quantify residual contamination levels following decontamination. In addition, well-defined and thorough sampling and analysis plans (SAPs) will need to be developed to ensure the data collected during the response is of known and documented quality. EPA is working on a tool to document SAPs, associated data quality objectives (DQOs), and associated information to help the response community develop the SAPs.

III. QA REQUIREMENTS

Task(s) 2 through 7 in this WA require the use of primary and/or secondary data. Consistent with the Agency's Quality Assurance (QA) requirements, the contractor must prepare a Project Specific Quality Assurance Project Plan (PQAPP), to assure the quality of the data used under this WA. Work on these tasks cannot proceed until the contractor receives notification from the WACOR via e-mail that utilization of the QAPP is approved for use. For tasks 2 through 7, work cannot proceed until the previous QAPP is amended for the new tool and the contractor receives notification from the WACOR via e-mail that utilization of the QAPP amendment is approved for use. The QA requirements must be addressed in the work plan and monthly progress reports as specified under Task 0, below.

In addition, the work plan shall include the requirement that all electronic and information technology (EIT)

and all EIT deliverables be Section 508 compliant in accordance with the policies referenced at <http://www.epa.gov/accessibility/>. Deliverables which will be needed to be made 508 compliant as part of the option period will be designated as such in the task narrative and delivery table.

IV. DETAILED TASK DESCRIPTION:

All direction under this WA will be provided as written technical direction from the WACOR, Alternate or WACOR as appropriate. If provided first as verbal technical direction to the contractor, it will be confirmed in writing within 5 calendar days, with a copy to the CL COR and the Contracting Officer (CO), and is subject to the limitations of the technical direction contract clause. Each initial deliverable shall be provided to the EPA WACOR in draft form for review and comment. The contractor shall incorporate WACOR/ review comments into revisions of the drafts. All drafts and final reports shall be approved by the WACOR.

The contractor shall perform the following tasks:

The contractor shall perform the following tasks in support of ESAM program, SAM and SAM addendums, SAM compendiums, development and verification of selected analytical and sample collection procedures, development and maintenance of a interactive ESAM web site and associated web pages, MicroSap tool and webpage, tool revisions and maintenance, and method development/verification addressing SAM analytes that may include 1) chemical 2) biological 3) radiological and 4) biotoxins.

Task 0: Work Plan, Progress evaluations, and Monthly Progress Reports

The contractor shall develop a WP that describes how each task will be carried out. The work plan shall include a schedule, staffing plan, level of effort (LOE), and cost estimate for each task, the contractor's key assumptions on which staffing plan and budget are based, and qualifications of proposed staff. In addition, the work plan shall include the requirement that all electronic and information technology (EIT) and all EIT deliverables be Section 508 compliant in accordance with the policies referenced at <http://www.epa.gov/accessibility/>. If a subcontractor(s) is proposed and subcontractors are outside the local metropolitan area, the contractor shall include information on plans to manage work and contract costs.

In addition, the contractor shall prepare a PQAPP, as noted above, and ensure the quality of primary and/or secondary data used to complete these tasks. The monthly progress report shall indicate, in a separate QA section, whether significant QA issues have been identified and how they are being resolved. The WP shall explain when the PQAPP will be submitted based on the specific data requirements of the WA. Work on these tasks cannot proceed until the contractor receives notification of the new PQAPP approval from the WACOR via e-mail.

In each monthly progress report, the contractor shall, at the introduction to the discussion of this WA, discuss actual progress toward achieving the purpose of this work assignment, including problems encountered, issues that may need to be resolved, and anticipated timing for completing the goals of the WA. The contractor shall provide an overview of contract projects, striving to implement efficiencies in performance when complimentary requirements are issued. The contractor shall assure that duplication of effort relative to other ongoing WA under this contract is not occurring.

Deliverables: Work plans, monthly progress and financial reports.

Task 1: Quality Assurance Project Plan (QAPP)

The contractor shall prepare a QAPP(s) in accordance with Quality Assurance (QA) Category B. Attachment 1 to this Performance Work Statement (PWS) provides information regarding **NHSRC QA Requirements/Definitions List**.

QAPPs prepared for a Category B project must be developed in accordance with the document titled "EPA Requirements for Quality Assurance Project Plans." EPA QA/R-5 can be found at https://www.epa.gov/sites/production/files/2016-06/documents/r5-final_0.pdf and QAPPS must be

approved by an EPA Quality Assurance Manager (QAM) prior to the start of any literature searches (existing data), data collection, gathering, synthesizing, or data generation (laboratory) work.

At the discretion of the COR, Category B QAPP(s) can be either based on the R5 guidance (described above) or a project-specific QA requirements provided by the PI.

Additional information related to QA requirements can be found at www.epa.gov/quality.

The contractor must prepare Quality Assurance Project Plan(s) for approval by NHSRC. Work on NHSRC tasks cannot proceed until the contractor receives notification from the WACOR via e-mail that utilization of the QAPP is approved for use.

Deliverables: Approved Quality Assurance Project Plan(s) (QAPP[s]).

Task 2: Environmental Sampling and Analytical Methods (ESAM) Program Application (Website)

- Maintenance: The contractor shall maintain the current ESAM program application (website), associated web pages, and the query tools.. The contractor shall provide application (website) maintenance and monitoring, including, but not limited to, checks of broken links, logging of comments and response to comments. The ESAM program application (website) and its associated web pages shall provide links as needed to SAM companion documents, analytical methods/protocols, and sample collection plans/procedures.
- Query tools: The contractor will maintain the SAM and SCID query tools and update as directed by EPA for additions of new analytical methods via the addendum described in Task 3.
- Document Uploads: The Contractor shall upload newly developed and/or revised ESAM related sample collection procedures, strategies, companion documents, and addendums.
- The Contractor is requested to propose specific steps/activities necessary to achieve desired goals.

Deliverables: Functional interactive application (website) updated as directed by WACOR or Alternate WACOR

Task 3: Selected Analytical Methods for Environmental Remediation and Recovery (SAM)

The Contractor shall support NHSRC in the publishing addendums to of SAM 2017 as requested.

- Addendums: The Contractor shall support the planning and execution of each addendum including (but not limited to): develop the addendum, assist the EPA WACOR/Alternate WACOR with resolution of review comments as requested, prepare draft documents, prepare a final document, and post to the application (website). It is anticipated up to 10 Addendums for this option period.

Deliverables:

- Addendums: Final 508 Compliant documents ready for publishing as requested by WACOR or Alt-WACOR.

Task 4: SAM Companion Documents

The Contractor shall plan and execute, as requested, preparation of and /or updates to existing SAM related/companion documents. This shall include, as applicable, up to 4 cycles of document review requiring coordination, collection of comments, preparation of response to comment documents, resolution of comments with EPA WACOR/Alternate WACOR, and updating draft document based on received and accepted comments, and preparing final documents in support of, but not limited to, the below listed projects:

- The contractor shall provide support in the revision of the Laboratory Environmental Sample Disposal Information Document and PreID Document.

Deliverables: Final 508 compliant documents as requested by EPA.

Task 5: Technical Support for SAM Chemical and Radiochemical Procedures and Protocols.

The Contractor shall provide technical support for work related to chemical and radiochemical SAM products. This shall include (but not limited to) the development of, guidance documents, sample collection documents; preparation of comment/response documentation; participation in meetings and related meeting documentation; preparation of presentation and meeting materials in support of, but not limited to, the below listed projects:

- The contractor shall provide support in the development of the radiological sampling strategy document for building materials.
- The contractor shall provide support in the revision of the *Sample Collection Procedures for Radiochemical Analytes in Environmental Matrices* (2012 revision) to match information in SAM 2017 and add information that was put into the sample collection procedure for building materials.
- Deliverables: See Section V

Task 6: MicroSAP Tool Maintenance, Revisions, and Technical Support

- Maintenance: The contractor shall maintain the current MicroSAP tool which will be hosted on the EPA NCC server. The contractor shall provide application maintenance and monitoring, including, but not limited to, checks of broken links, logging of comments and response to comments, and diagnosis and resolution of tool issues.
- MicroSAP web page: The contractor shall develop the MicroSAP webpage which shall provide links as needed to companion documents and access to the MicroSAP tool. This webpage will be linked via the ESAM program application (website) and developed at the direction of EPA.
- MicroSAP Tool Revisions and technical support: The contractor shall provide revision of the online tool as directed by EPA.
 - Tool revisions will be based on expert working group input incorporation of new information or to correct existing information in the tool.
 - The contractor shall review revisions of the tool with the EPA.
 - Upon approval of the EPA, the revised tool will be sent through NHSRC clearance. It is expected that up to 5 cycles of tool review requiring coordination, collection of comments, preparation of response to comment documents, resolution of comments with EPA WACOR/Alternate WACOR, and updating the tool based on received and accepted comments, Information presented in the tool will be 508 compliant.
 - The contractor shall organize, manage, and summarize up to 3 virtual MicroSAP tool technical working group meetings as directed by EPA.
 - The contractor shall participate in EPA Information Technology (IT) related conference calls (up to 5) to provide information on the Microbial Data Usability Tool and contribute to technical discussions.
 - After updating of MicroSAP tool, the contractor will work with EPA OEI to provide the most recent version of the tool for placement on the EPA server.

Task 7: Technical Support for MicroSAP: Users Guide

The contractor shall provide technical support in the revision of the draft Microbial Data Usability Tool User Guide. This document provides MicroSAP user instructions and helpful hints. The document may need revision and updates in accordance to any changes to the MicroSAP tool that are required during maintenance and revisions.

- The Contractor shall revise and update of the MicroSAP Tool User Guide content as directed by EPA. Items for possible revision include addition of resources and information to the document and content revisions based on information generated by the MicroSAP workgroup. After approval of the workgroup, the companion document will undergo, as applicable, up to 4 cycles of document review requiring coordination, collection of comments, preparation of response to comment documents, resolution of comments with EPA WAM/Alternate WAM, and updating the draft document based on received and accepted comments. The contractor will prepare the final 508 compliant document.

Deliverables: See Section V

V. SCHEDULE/DELIVERABLES

Task	Deliverable	Due date
0	Monthly Report	Per contract requirements
1	QAPP	Revise/Draft 30 days after contract award, updated as necessary thereafter.
2	ESAM Application (web site & associated pages) Maintenance SAM/SCID Query tool updates Document Uploads:	 Determined by EPA when issues are found. Updated upon EPA request* Determined when requested by EPA*
3	SAM Revision Addendums: Final 508 Compliant documents.	 Determined when requested by EPA*
4	SAM Companion Documents Laboratory Environmental Sample Disposal Information Document. Final 508 Compliant document. PreID Document. Final 508 Compliant document	 Final document by March 31, 2019 Final document by March 31, 2019
5	Chemical and Radiochemical SAM products and SAM methods Sample collection strategy procedure for building materials: Final 508 Compliant document Revised Sample Collection Procedure for Environmental Matrices: Final 508 Compliant document	 Determined when requested by EPA* Determined when requested by EPA*
6	MicroSAP Tool Maintenance MicroSAP web page MicroSAP Tool Revisions:	 Determined by EPA when issues are found. Determined when requested by EPA* Determined when requested by EPA*

7	Technical Support for MicroSAP Microbial Data Usability Tool User Guide	Final document 60 days after completion of final MicroSAP and placement on EPA server.
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* EPA will determine a schedule for delivery of a document/web update at the time of written technical direction

VI. REPORTING REQUIREMENTS

- ! Monthly Progress Reports (including a progress evaluation discussion)
- ! Financial Reports
- ! Project Specific PQAPP (if applicable)

VII. GREEN MEETINGS AND CONFERENCES

The contractor shall follow the provision of EPA prescription 1523.703-1, *Acquisition of environmentally preferable meeting and conference services (May 2007)*, for the use of off-site commercial facilities for an EPA event, whether the event is a meeting, conference, training session, or other purpose. Environmental preferability is defined at FAR 2.101, and shall be used when soliciting quotes or offers for meeting/conference services on behalf of the Agency.

The tasks under this work assignment do not require the acquisition of "off-site" facilities for conferences and meetings as defined in the IPN 12-05. AND the events associated with this work assignment are not covered by EPA Order 1900.3 and do not require EPA Form 5170.

The contractor shall immediately alert the WACOR to any anticipated event under the work assignment which may result in incurring an estimated \$20,000 or more cost, funded by EPA, specific to that event, meeting, training, etc. Those costs would include travel of both prime and consultant personnel, planning and facilitation costs, AV and rental of venue costs, etc. The EPA WACOR will then prepare for approval the internal paperwork for the event and will advise the contractor when appropriate signatures have been obtained. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

Any event which meets the definition of a "conference," with total net expenditures greater than \$20,000, is required to submit EPA Electronic Form 5170 and Form 5170-A (with cost estimates/actuals). In the case the workflow system is down and CORs require emergency approval, they can submit EPA Form 5170 (PDF) (2pp, 93K) (with cost estimates) to conference@epa.gov.

IX. SOFTWARE APPLICATION AND ACCESSIBILITY (SECTION 508 REHABILITATION ACT AND AMENDMENTS)

Software Application files, if delivered to the Government, shall conform to the requirements relating to accessibility as detailed to the 1998 amendments to the Rehabilitation Act, particularly, but not limited to, § 1194.21 Software applications and operating systems and § 1194.22 Web-based intranet and internet information and applications. See: <http://www.section508.gov/>

Preferred text format:	MS Word, 8.0 or higher (Office 2007 or higher)
Preferred presentation format:	Power Point, Office 2007 or higher
Preferred graphics format:	Each graphic is an individual GIF file
Preferred portable format:	Adobe Acrobat, version 6.0

The WACOR shall identify which of delivered products will require 508 compliance.

QUALITY ASSURANCE SURVEILLANCE PLAN
for WSD's Mission Support

Quality Assurance Surveillance Plan

The requirements contained in this WA are considered performance-based, focusing on the Agency's desired results and outcomes. The contractor shall be responsible for determining the most effective means by which these requirements will be fulfilled. In order to fulfill the requirements, the contractor shall design innovative processes and systems that can deliver the required services in a manner that will best meet the Agency's performance objectives. This performance-based requirement represents a challenge to the contractor to develop and apply innovative and efficient approaches for achieving results and meeting or exceeding the performance objectives, measures, and standards in Attachment 4 of the contract. The Contractor's performance will be reflected in the positive or negative evaluation offered by the Agency in the Contractor Performance Evaluation (CPE) which is evaluated annually (per the "Contractor Performance Evaluation" clause in the contract). The WACOR shall submit a complete annual review of the areas outlined in the Quality Assurance Surveillance Plan (QASP), included in the contract, which will then be utilized by the CLCOR in preparing the overall evaluations submitted annually in response to the Contractor Performance Evaluation requirements in the contract.

Attachment 1: NHSRC QA Requirements/Definitions List

EPA's Quality System Website: <http://www.epa.gov/quality>

In accordance with EPA CIO 2105.0 (Order), EPA 2105-P-01-0 (Manual), and conformance to ANSI/ASQC E4 must be demonstrated by submitting the quality documentation described herein. All Quality documentation shall be submitted to the Government for review. The Government will review and return the quality documentation, with comments, and indicate approval or disapproval. If the quality documentation is not approved, it must be revised to address all comments and shall be resubmitted to the Government for approval. Work involving environmental data collection, generation, use, or reporting shall not commence until the Government has approved the quality documentation. The Quality Assurance Project Plan (QAPP) shall be submitted to the Government at least thirty (30) days prior to the beginning of any environmental data gathering or generation activity in order to allow sufficient time for review and revisions to be completed. After the Government has approved the quality documentation, the Contractor shall also implement it as written and approved by the Government.

NHSRC's Quality System Specifications for Extramural Actions –

These requirements typically pertain to single project efforts. The five specifications are:

- (1) a description of the organization's Quality System (QS) and information regarding how this QS is documented, communicated and implemented;
- (2) an organizational chart showing the position of the QA function;
- (3) delineation of the authority and responsibilities of the QA function;
- (4) the background and experience of the QA personnel who will be assigned to the project; and
- (5) the organization's general approach for accomplishing the QA specifications in the SOW.

NHSRC QA Requirements/Definitions List

Category Level Designations (determines the level of QA required):

- ☐ **Category A Project (formerly Category 1 and 2)** – applies to research that is anticipated to result in high-visibility products. In this case, the QAPP shall address all elements listed in "EPA Requirements for QA Project Plans, EPA QA/R-5. <http://www.epa.gov/quality/qs-docs/r5-final.pdf>

Research of this nature meets one or more of the following criteria:

- Results are ISI
- Has a high probability the results could be used in litigation or enforcement
- Is a HISA
- Direct regulatory support

- ☐ **Category B Project (formerly Category 3 and 4)** - applicable to projects that do not meet the criteria for Category A. In lieu of using “EPA Requirements for QA Project Plans, EPA QA/R-5, a QAPP may be developed in accordance with NHSRC’s QAPP requirement templates. This decision is made by the Principal Investigator or lead researcher.

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Additional information regarding **QAPP** requirements for a specific project type are provided below.

Project Types:

NHSRC’s QAPP Requirements templates are available for Applied Research Projects, Sampling and analysis Project, Method Development Project, and Existing Data Project. These templates are condensed from applicable sections of R-5 (EPA Requirements for QA Project Plans) and are intended to serve as a starting point when preparing a QAPP. These templates and their format may not fit every research scenario and QAPP’s must conform to applicable sections of R-5 in a way that fully describes the research plan and appropriate QA and QC measures to ensure that the data are of adequate quality and quantity to fit their intended purpose.

- ☐ **Applied Research Project** - pertains to a study performed to generate data to demonstrate the performance of accepted processes or technologies under defined conditions. These studies are often pilot- or field-scale.
- ☐ **Sampling and Analysis Project** - pertains to the collection and analysis of samples with no objectives other than to provide characterization or monitoring information.
- ☐ **Existing Data Project** - pertains to environmental data collected from other sources, by or for EPA, that are used for purposes other than those originally intended. Sources may include: literature, industry surveys, compilations from computerized databases and information systems, and computerized or mathematical models of environmental processes.
- ☐ **Method Development Project** - pertains to situations where there is no existing standard method, or a standard method needs to be significantly modified for a specific application.

For other types of project types, the EPA Guidance documents are available. All QAPPs must conform to applicable sections of R-5 in a way that fully describes the research plan and appropriate QA and QC measures to ensure that the data are of adequate quality and quantity to fit their intended purpose. The specific and general guidance documents can be found at http://www.epa.gov/quality/qa_docs.html#guidance

- ☐ **Design, Construction, and/or Operation of Environmental Technology Project** - pertains to environmental technology designed, constructed and/or operated by and/or for EPA. The QAPP shall address requirements in the EPA Quality System document “Guidance on Quality Assurance for Environmental Technology Design, Construction, and Operation” (EPA QA/G-11)
- ☐ **Geospatial Data Quality Assurance Project** - pertains to data collection; data processing and analysis; and data validation of geospatial applications. The QAPP shall address requirements in the EPA Quality System document “Guidance for Geospatial Data Quality Assurance Project Plans” (EPA QA /G-5S).
- ☐ **Model Development Project** - includes all types of mathematical models including static, dynamic, deterministic, stochastic, mechanistic, empirical, etc. The QAPP shall address requirements in the EPA Quality System document “Guidance for Quality Assurance Project Plans for Modeling” (EPA QA/G-5M)

Definitions:

Environmental Data - These are any measurement or information that describe environmental processes, location, or conditions; ecological or health effects directly from measurements, produced from software and models, and compiled from other sources such as data bases or the literature. For EPA, environmental data include information collected directly from measurements, produced from software and models, and compiled from other sources such as data bases or literature.

Incremental Funding - Incremental funding is partial funding, no new work.

Quality Assurance (QA) - Quality assurance is a system of management activities to ensure that a process, item, or service is of the type and quality needed by the customer. It deals with setting policy and running an administrative system of management controls that cover planning, implementation, and review of data collection activities and the use of data in decision making. Quality assurance is just one part of a quality system.

Quality Assurance Project Plan (QAPP) - A QAPP is a document that describes the necessary quality assurance, quality control, and other technical activities that must be implemented to ensure that the results of the work performed will satisfy the stated performance criteria. A QAPP documents project-specific information.

Quality Control (QC) - Quality control is a technical function that includes all the scientific precautions, such as calibrations and duplications, which are needed to acquire data of known and adequate quality.

Quality Management Plan (QMP) - A QMP is a document that describes an organization's/program's quality system in terms of the organizational structure, policy and procedures, functional responsibilities of management and staff, lines of authority, and required interfaces for those planning, implementing, documenting, and assessing all activities conducted. A QMP documents the overall organization/program, and is primarily applicable to multi-year, multi-project efforts. An organization's/program's QMP shall address all elements listed in the "Requirements for Quality Management Plans" in Appendix B of the NHSRC QMP.

Quality System - A quality system is the means by which an organization manages its quality aspects in a systematic, organized manner and provides a framework for planning, implementing, and assessing work performed by an organization and for carrying out required quality assurance and quality control activities.

R-2. EPA Requirements for Quality Management Plans (EPA/240/B-01/002) March, 2001
<http://www.epa.gov/quality/qs-docs/r2-final.pdf>

R-5. EPA Requirements for Quality Management Plans (EPA/240/B-01/002) March, 2001
<http://www.epa.gov/quality/qs-docs/r5-final.pdf>

Substantive Change - Substantive change is any change in an activity that may alter the quality of data being used, generated, or gathered.

Principal Investigator (PI) - This person is technically responsible for the project. For extramural contract work, the PI is typically the contracting officer's representative (COR). For intramural work, the lead researcher is typically the Principal Investigator.

Abbreviations:

COR	Contracting Officer's Representative	IAG	Interagency Agreement
NHSRC	National Homeland Security Research Center	QA	Quality Assurance
QA ID	Quality Assurance Identification	QAM	Quality Assurance Manager
QAPP	Quality Assurance Project Plan	QMP	Quality Management Plan
QS	Quality System	SOW	Statement of Work
PI	Principal Investigator	CRADA	Cooperative Research & Development Agreement

<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> </div> <div> United States Environmental Protection Agency Washington, DC 20460 Work Assignment </div> </div>						Work Assignment Number 03-12				
						<input type="checkbox"/> Other <input checked="" type="checkbox"/> Amendment Number: 000001				
Contract Number EP-C-15-012			Contract Period 08/01/2015 To 07/31/2019 Base Option Period Number 3			Title of Work Assignment/SF Site Name NHSRC Sam & Method Development				
Contractor CSRA LLC					Specify Section and paragraph of Contract SOW 2.7, 2.8.1, 2.8.2, 2.8.3, 2.8.4, 2.9, 3.1.2, 3.1.4					
Purpose: <input type="checkbox"/> Work Assignment <input type="checkbox"/> Work Assignment Close-Out <input checked="" type="checkbox"/> Work Assignment Amendment <input type="checkbox"/> Incremental Funding <input type="checkbox"/> Work Plan Approval						Period of Performance From 08/01/2018 To 07/31/2019				
Comments: The purpose of this amendment 1 to CSRA (EP-C-15012)WA 03-12 is to add subtasks to Task 2 and to add a new Task 8 - Decon Query Tool.										
<div style="display: flex; justify-content: space-between;"> <input type="checkbox"/> Superfund Accounting and Appropriations Data <input checked="" type="checkbox"/> Non-Superfund </div>										
SFO <input type="checkbox"/> Note: To report additional accounting and appropriations data use EPA Form 1900-69A. (Max 2)										
Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										
Authorized Work Assignment Ceiling										
Contract Period:		Cost/Fee:				LOE: 1,860				
08/01/2015 To 07/31/2019										
This Action:						1,650				
Total:						3,510				
Work Plan / Cost Estimate Approvals										
Contractor WP Dated:				Cost/Fee		LOE:				
Cumulative Approved:				Cost/Fee		LOE:				
Work Assignment Manager Name Kathy Hall						Branch/Mail Code:				
_____ (Signature) (Date)						Phone Number: 513-379-5260				
						FAX Number:				
Project Officer Name Nancy Parrotta						Branch/Mail Code:				
_____ (Signature) (Date)						Phone Number: 202-564-5260				
						FAX Number:				
Other Agency Official Name						Branch/Mail Code:				
_____ (Signature) (Date)						Phone Number:				
						FAX Number:				
Contracting Official Name Donna Reinhart						Branch/Mail Code:				
_____ Donna Reinhart 9/19/2018 (Signature) (Date)						Phone Number: 513-487-2114				
						FAX Number:				

**Work Assignment (WA)
Performance Work Statement (PWS)**

**WSD Contract No: EP-C-15-012
Work Assignment WA-03-12 Amendment 1**

Work Assignment Contract Officer Representative (WACOR):

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LOE: 3510 (1860+ 1650)

Period of performance: August 1, 2018 to July 31, 2019

Title: National Homeland Security Research Center Selected Analytical Methods for Environmental Remediation and Recovery & Method Development

WSD Contract SOW Areas: 2.7, 2.8.1, 2.8.2, 2.8.3, 2.8.4, 2.9, 3.1.2, 3.1.3, 3.1.4, 3.1.9, 3.1.10, 3.1.14, 3.1.17, 3.1.19

I. PURPOSE

The purpose of this work is to provide continued support for the Environmental Protection Agency (EPA) National Homeland Security Research Center (NHSRC) initiatives in updating the Environmental Sampling and Analytical Methods (ESAM) program including the Selected Analytical Methods for Environmental Remediation and Recovery (SAM) document; identifying, developing, and verifying analytical methods that can be used by multiple laboratories analyzing environmental samples during environmental remediation following a homeland security event; developing selected analytical and sample collection procedures; coordinating document reviews and revisions including compiling and responding to comments; facilitating procedure verifications; supporting an interactive web page including development and maintenance; and developing, revising and testing tools. These sampling and analytical methods and supporting documents, web page, and tools address the chemical, radiological, and biological analytes (CBR) listed in NHSRC's SAM document, and support EPA laboratory networks, including the Environmental Response Laboratory Network (ERLN) and Water Laboratory Alliance (WLA). Importantly, analytical methods verified under this Work Assignment (WA) shall be demonstrated to assure that their performance characteristics (e.g. accuracy, limit of detection and robustness) meet site remediation goals, i.e. site clearance, for re-occupation as existed prior to the contamination event. This project supports programmatic needs related to our national all hazards homeland security responsibilities of Securing and Sustaining Water Systems by protecting water systems from terrorist attacks and inadvertent disasters and detecting and recovering from successful attacks and the effects of

disasters by leading efforts to provide States and water utilities with guidance, tools and strategies.

To achieve this purpose, the contractor shall provide technical, analytical, study coordination, and computer support. NHSRC will continue to coordinate with subject matter experts involved in developing ESAM and SAM, including representatives from EPA Offices, EPA and State laboratories and representatives from the U.S. Centers for Disease Control and Prevention (CDC), Department of Agriculture (USDA), Food and Drug Administration (FDA), and U.S. Department of Homeland Security (DHS). NHSRC also will continue working with representatives from the Office of Solid Waste and Emergency Response (OSWER) and Office of Water (OW), where appropriate, to leverage and avoid duplication of existing efforts.

Under this work assignment, the contractor shall provide technical support to EPA's development of the ESAM program including SAM, SAM addendums and companion documents, development and verification of selected analytical and sample collection procedures and protocols, development and maintenance of an interactive web site, and development and verification of laboratory methods to identify and measure chemical, radiological and biological analytes included in SAM. The contractor will also provide support for EPA's MicroSAP tool, webpage, and associated documents. Contractor support will be required in the following areas:

- Data exchange, management, and review
- Single lab verification leading to multi-laboratory method validation studies
- Document development
- Document revisions. The contractor shall verify each document as drafted and conduct minor revisions as needed. If necessary, major revisions need to be promptly identified such that EPA can determine appropriate follow-on actions.
- ESAM program web pages modification and support
- MicroSAP tool revisions, maintenance and webpage and document development.

II. BACKGROUND:

After 9/11, EPA initiated an Environmental Response Laboratory Network (ERLN). The need to establish a network of laboratories to effectively respond to possible contamination scenarios resulting from terrorist attacks was identified as a national vulnerability. EPA will be responsible for the analysis of a large number of environmental samples in a short period of time putting a large demand on the nation's laboratory systems with respect to capacity and capability. NHSRC has the responsibility to research analytical methods to support the laboratories in measuring the many possible CBR agents that could be used in such attacks. Along with its partners, EPA has developed a document, Selected Analytical Methods for Environmental Remediation and Recovery (SAM) that compiles analytical methods which can be used during the remediation phase of cleanup. EPA is also working on additional documents such as collection procedures, companion documents, and analytical protocols which support the SAM. This work is designed to help assure analytical methods exist to quickly and accurately identify selected agents and quantify residual contamination levels following decontamination. In addition, well-defined and thorough sampling and analysis plans (SAPs) will need to be developed to ensure the data collected during the response is of known and documented quality. EPA is working on a tool to document SAPs, associated data quality objectives (DQOs), and associated information to help the response community develop the SAPs.

III. QA REQUIREMENTS

Task(s) 2 through 7 in this WA require the use of primary and/or secondary data. Consistent with the Agency's Quality Assurance (QA) requirements, the contractor must prepare a Project Specific Quality Assurance Project Plan (PQAPP), to assure the quality of the data used under this WA. Work on these tasks cannot proceed until the contractor receives notification from the WACOR via e-mail that utilization of the QAPP is approved for use. For tasks 2 through 7, work cannot proceed until the previous QAPP is amended for the new tool and the contractor receives notification from the WACOR via e-mail that utilization of the QAPP amendment is approved for use. The QA requirements must be addressed in the work plan and monthly progress reports as specified under Task 0, below.

In addition, the work plan shall include the requirement that all electronic and information technology (EIT)

and all EIT deliverables be Section 508 compliant in accordance with the policies referenced at <http://www.epa.gov/accessibility/>. Deliverables which will be needed to be made 508 compliant as part of the option period will be designated as such in the task narrative and delivery table.

IV. DETAILED TASK DESCRIPTION:

All direction under this WA will be provided as written technical direction from the WACOR, Alternate or WACOR as appropriate. If provided first as verbal technical direction to the contractor, it will be confirmed in writing within 5 calendar days, with a copy to the CL COR and the Contracting Officer (CO), and is subject to the limitations of the technical direction contract clause. Each initial deliverable shall be provided to the EPA WACOR in draft form for review and comment. The contractor shall incorporate WACOR/ review comments into revisions of the drafts. All drafts and final reports shall be approved by the WACOR.

The contractor shall perform the following tasks:

The contractor shall perform the following tasks in support of ESAM program, SAM and SAM addendums, SAM compendiums, development and verification of selected analytical and sample collection procedures, development and maintenance of a interactive ESAM web site and associated web pages, MicroSap tool and webpage, tool revisions and maintenance, and method development/verification addressing SAM analytes that may include 1) chemical 2) biological 3) radiological and 4) biotoxins.

Task 0: Work Plan, Progress evaluations, and Monthly Progress Reports

No Change

Task 1: Quality Assurance Project Plan (QAPP)

No Change

Task 2: Environmental Sampling and Analytical Methods (ESAM) Program Application (Website)

- Maintenance: No Change
- Query tools: The contractor will modify the online query tools to include method tiers in the SAM query results for chemicals, biotoxins, and pathogens and to begin modifications of the pathogen SAM query to better match the other disciplines.
- Document Uploads: No Change
- Website migration to a micro-site or resource page per OEI instruction. Will involve webpage modifications and OEI reviews (multiple reviews anticipated).
- The Contractor is requested to propose specific steps/activities necessary to achieve desired goals.

Deliverable: Tool migration and webpage updates completed by July 31, 2019. Completion of modification of query tool will be as determined by EPA.

Task 3: Selected Analytical Methods for Environmental Remediation and Recovery (SAM)

No Change

Task 4: SAM Companion Documents

No Change

Task 5: Technical Support for SAM Chemical and Radiochemical Procedures and Protocols.

No Change

Task 6: MicroSAP Tool Maintenance, Revisions, and Technical Support

No Change

Task 7: Technical Support for MicroSAP: Users Guide

No Change

Task 8: Decon Query Tool

The contractor will develop a query tool (similar to the SAM or SCID query tools) to provide search capabilities of NHSRC published decontamination reports. The information to be used will be provided by EPA in spreadsheet format.

Deliverable: Beta version of the query tool for radiological decon.

Deliverables: See Section V

V. SCHEDULE/DELIVERABLES

Task	Deliverable	Due date
0	Monthly Report	No change
1	QAPP	No change
2	ESAM Application (web site & associated pages) Maintenance SAM/SCID Query tool updates/modifications Website modifications for OEI Document Uploads:	No change Determined when requested by EPA July 31, 2019 No change
3	SAM Revision Addendums: Final 508 Compliant documents.	No change
4	SAM Companion Documents Laboratory Environmental Sample Disposal Information Document. Final 508 Compliant document. PreID Document. Final 508 Compliant document	No change Determined when requested by EPA*

5	Chemical and Radiochemical SAM products and SAM methods	
	Sample collection strategy procedure for building materials: Final 508 Compliant document	No change
	Revised Sample Collection Procedure for Environmental Matrices: Final 508 Compliant document	No change*
6	MicroSAP Tool	
	Maintenance	No change
	MicroSAP web page	No change
	MicroSAP Tool Revisions:	No change
7	Technical Support for MicroSAP	
	Microbial Data Usability Tool User Guide	No change
8	Decon Query Tool	
	Beta version of the query tool (radiological decon)	July 31, 2019

* EPA will determine a schedule for delivery of a document/web update at the time of request

VI. REPORTING REQUIREMENTS

- ! Monthly Progress Reports (including a progress evaluation discussion)
- ! Financial Reports
- ! Project Specific PQAPP (if applicable)

VII. GREEN MEETINGS AND CONFERENCES

The contractor shall follow the provision of EPA prescription 1523.703-1, Acquisition of environmentally preferable meeting and conference services (May 2007), for the use of off-site commercial facilities for an EPA event, whether the event is a meeting, conference, training session, or other purpose. Environmental preferability is defined at FAR 2.101, and shall be used when soliciting quotes or offers for meeting/conference services on behalf of the Agency.

The tasks under this work assignment do not require the acquisition of "off-site" facilities for conferences and meetings as defined in the IPN 12-05. AND the events associated with this work assignment are not covered by EPA Order 1900.3 and do not require EPA Form 5170.

The contractor shall immediately alert the WACOR to any anticipated event under the work assignment which may result in incurring an estimated \$20,000 or more cost, funded by EPA, specific to that event, meeting, training, etc. Those costs would include travel of both prime and consultant personnel, planning and facilitation costs, AV and rental of venue costs, etc. The EPA WACOR will then prepare for approval the internal paperwork for the event and will advise the contractor when appropriate signatures have been obtained. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

Any event which meets the definition of a "conference," with total net expenditures greater than \$20,000, is required to submit EPA Electronic Form 5170 and Form 5170-A (with cost estimates/actuals). In the case the workflow system is down and CORs require emergency approval, they can submit EPA Form 5170 (PDF) (2pp, 93K) (with cost estimates) to conference@epa.gov.

IX. SOFTWARE APPLICATION AND ACCESSIBILITY (SECTION 508 REHABILITATION ACT AND AMENDMENTS)

Software Application files, if delivered to the Government, shall conform to the requirements relating to accessibility as detailed to the 1998 amendments to the Rehabilitation Act, particularly, but not limited to, § 1194.21 Software applications and operating systems and § 1194.22 Web-based intranet and internet information and applications. See: <http://www.section508.gov/>

Preferred text format:	MS Word, 8.0 or higher (Office 2007 or higher)
Preferred presentation format:	Power Point, Office 2007 or higher
Preferred graphics format:	Each graphic is an individual GIF file
Preferred portable format:	Adobe Acrobat, version 6.0

The WACOR shall identify which of delivered products will require 508 compliance.

QUALITY ASSURANCE SURVEILLANCE PLAN
for WSD's Mission Support

Quality Assurance Surveillance Plan

The requirements contained in this WA are considered performance-based, focusing on the Agency's desired results and outcomes. The contractor shall be responsible for determining the most effective means by which these requirements will be fulfilled. In order to fulfill the requirements, the contractor shall design innovative processes and systems that can deliver the required services in a manner that will best meet the Agency's performance objectives. This performance-based requirement represents a challenge to the contractor to develop and apply innovative and efficient approaches for achieving results and meeting or exceeding the performance objectives, measures, and standards in Attachment 4 of the contract. The Contractor's performance will be reflected in the positive or negative evaluation offered by the Agency in the Contractor Performance Evaluation (CPE) which is evaluated annually (per the "Contractor Performance Evaluation" clause in the contract). The WACOR shall submit a complete annual review of the areas outlined in the Quality Assurance Surveillance Plan (QASP), included in the contract, which will then be utilized by the CLCOR in preparing the overall evaluations submitted annually in response to the Contractor Performance Evaluation requirements in the contract.

Attachment 1: NHSRC QA Requirements/Definitions List

EPA's Quality System Website: <http://www.epa.gov/quality>

In accordance with EPA CIO 2105.0 (Order), EPA 2105-P-01-0 (Manual), and conformance to ANSI/ASQC E4 must be demonstrated by submitting the quality documentation described herein. All Quality documentation shall be submitted to the Government for review. The Government will review and return the quality documentation, with comments, and indicate approval or disapproval. If the quality documentation is not approved, it must be revised to address all comments and shall be resubmitted to the Government for approval. Work involving environmental data collection, generation, use, or reporting shall not commence until the Government has approved the quality documentation. The Quality Assurance Project Plan (QAPP) shall be submitted to the Government at least thirty (30) days prior to the beginning of any environmental data gathering or generation activity in order to allow sufficient time for review and revisions to be completed. After the Government has approved the quality documentation, the Contractor shall also implement it as written and approved by the Government.

NHSRC's Quality System Specifications for Extramural Actions –

These requirements typically pertain to single project efforts. The five specifications are:

- (1) a description of the organization's Quality System (QS) and information regarding how this QS is documented, communicated and implemented;
- (2) an organizational chart showing the position of the QA function;
- (3) delineation of the authority and responsibilities of the QA function;
- (4) the background and experience of the QA personnel who will be assigned to the project; and
- (5) the organization's general approach for accomplishing the QA specifications in the SOW.

NHSRC QA Requirements/Definitions List

Category Level Designations (determines the level of QA required):

- ☐ **Category A Project (formerly Category 1 and 2)** – applies to research that is anticipated to result in high-visibility products. In this case, the QAPP shall address all elements listed in "EPA Requirements for QA Project Plans, EPA QA/R-5. <http://www.epa.gov/quality/qdocs/r5-final.pdf>

Research of this nature meets one or more of the following criteria:

- Results are ISI
- Has a high probability the results could be used in litigation or enforcement
- Is a HISA
- Direct regulatory support

- ☐ **Category B Project (formerly Category 3 and 4)** - applicable to projects that do not meet the criteria for Category A. In lieu of using "EPA Requirements for QA Project Plans, EPA QA/R-5, a QAPP may be developed in accordance with NHSRC's QAPP requirement templates. This decision is made by the Principal Investigator or lead researcher.

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Additional information regarding **QAPP** requirements for a specific project type are provided below.

Project Types:

NHSRC's QAPP Requirements templates are available for Applied Research Projects, Sampling and analysis Project, Method Development Project, and Existing Data Project. These templates are condensed from applicable sections of R-5 (EPA Requirements for QA Project Plans) and are intended to serve as a starting point when preparing a QAPP. These templates and their format may not fit every research scenario and QAPP's must conform to applicable sections of R-5 in a way that fully describes the research plan and appropriate QA and QC measures to ensure that the data are of adequate quality and quantity to fit their intended purpose.

- ☐ **Applied Research Project** - pertains to a study performed to generate data to demonstrate the performance of accepted processes or technologies under defined conditions. These studies are often pilot- or field-scale.
- ☐ **Sampling and Analysis Project** - pertains to the collection and analysis of samples with no objectives other than to provide characterization or monitoring information.
- ☐ **Existing Data Project** - pertains to environmental data collected from other sources, by or for EPA, that are used for purposes other than those originally intended. Sources may include: literature, industry surveys, compilations from computerized databases and information systems, and computerized or mathematical models of environmental processes.
- ☐ **Method Development Project** - pertains to situations where there is no existing standard method, or a standard method needs to be significantly modified for a specific application.

For other types of project types, the EPA Guidance documents are available. All QAPPs must conform to applicable sections of R-5 in a way that fully describes the research plan and appropriate QA and QC measures to ensure that the data are of adequate quality and quantity to fit their intended purpose. The specific and general guidance documents can be found at http://www.epa.gov/quality/qa_docs.html#guidance

- ☐ **Design, Construction, and/or Operation of Environmental Technology Project** - pertains to environmental technology designed, constructed and/or operated by and/or for EPA. The QAPP shall address requirements in the EPA Quality System document "Guidance on Quality Assurance for Environmental Technology Design, Construction, and Operation" (EPA QA/G-11)
- ☐ **Geospatial Data Quality Assurance Project** - pertains to data collection; data processing and analysis; and data validation of geospatial applications. The QAPP shall address requirements in the EPA Quality System document "Guidance for Geospatial Data Quality Assurance Project Plans" (EPA QA /G-5S).
- ☐ **Model Development Project** - includes all types of mathematical models including static, dynamic, deterministic, stochastic, mechanistic, empirical, etc. The QAPP shall address requirements in the EPA Quality System document "Guidance for Quality Assurance Project Plans for Modeling" (EPA QA/G-5M)

Definitions:

Environmental Data - These are any measurement or information that describe environmental processes, location, or conditions; ecological or health effects directly from measurements, produced from software and models, and compiled from other sources such as data bases or the literature. For EPA, environmental data include information collected directly from measurements, produced from software and models, and compiled from other sources such as data bases or literature.

Incremental Funding - Incremental funding is partial funding, no new work.

Quality Assurance (QA) - Quality assurance is a system of management activities to ensure that a process, item, or service is of the type and quality needed by the customer. It deals with setting policy and running an administrative system of management controls that cover planning, implementation, and review of data collection activities and the use of data in decision making. Quality assurance is just one part of a quality system.

Quality Assurance Project Plan (QAPP) - A QAPP is a document that describes the necessary quality assurance, quality control, and other technical activities that must be implemented to ensure that the results of the work performed will satisfy the stated performance criteria. A QAPP documents project-specific information.

Quality Control (QC) - Quality control is a technical function that includes all the scientific precautions, such as calibrations and duplications, which are needed to acquire data of known and adequate quality.

Quality Management Plan (QMP) - A QMP is a document that describes an organization's/program's quality system in terms of the organizational structure, policy and procedures, functional responsibilities of management and staff, lines of authority, and required interfaces for those planning, implementing, documenting, and assessing all activities conducted. A QMP documents the overall organization/program, and is primarily applicable to multi-year, multi-project efforts. An organization's/program's QMP shall address all elements listed in the "Requirements for Quality Management Plans" in Appendix B of the NHSRC QMP.

Quality System - A quality system is the means by which an organization manages its quality aspects in a systematic, organized manner and provides a framework for planning, implementing, and assessing work performed by an organization and for carrying out required quality assurance and quality control activities.

R-2. EPA Requirements for Quality Management Plans (EPA/240/B-01/002) March, 2001
<http://www.epa.gov/quality/qs-docs/r2-final.pdf>

R-5. EPA Requirements for Quality Management Plans (EPA/240/B-01/002) March, 2001
<http://www.epa.gov/quality/qs-docs/r5-final.pdf>

Substantive Change - Substantive change is any change in an activity that may alter the quality of data being used, generated, or gathered.

Principal Investigator (PI) - This person is technically responsible for the project. For extramural contract work, the PI is typically the contracting officer's representative (COR). For intramural work, the lead researcher is typically the Principal Investigator.

Abbreviations:

COR	Contracting Officer's Representative	IAG	Interagency Agreement
NHSRC	National Homeland Security Research Center	QA	Quality Assurance
QA ID	Quality Assurance Identification	QAM	Quality Assurance Manager
QAPP	Quality Assurance Project Plan	QMP	Quality Management Plan
QS	Quality System	SOW	Statement of Work
PI	Principal Investigator	CRADA	Cooperative Research & Development Agreement

EPA United States Environmental Protection Agency Washington, DC 20460 Work Assignment						Work Assignment Number 03-14				
						<input type="checkbox"/> Other <input type="checkbox"/> Amendment Number:				
Contract Number EP-C-15-012			Contract Period 08/01/2015 To 07/31/2019 Base Option Period Number 3			Title of Work Assignment/SF Site Name Great Lakes Nat'l Prog Support				
Contractor CSRA LLC					Specify Section and paragraph of Contract SOW 2.0					
Purpose: <input checked="" type="checkbox"/> Work Assignment <input type="checkbox"/> Work Assignment Close-Out <input type="checkbox"/> Work Assignment Amendment <input type="checkbox"/> Incremental Funding <input type="checkbox"/> Work Plan Approval						Period of Performance From 08/01/2018 To 07/31/2019				
Comments: In accordance with clause B.1 of the contract, immediate start is hereby approved for this work assignment beginning on August 1, 2018. If the work plan is not approved within 35 calendar days after receipt of the work plan, the contractor shall stop work.										
<input type="checkbox"/> Superfund Accounting and Appropriations Data <input checked="" type="checkbox"/> Non-Superfund										
SFO <input type="checkbox"/> Note: To report additional accounting and appropriations date use EPA Form 1900-69A. (Max 2)										
Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										
Authorized Work Assignment Ceiling										
Contract Period:		Cost/Fee:				LOE: 0				
08/01/2015 To 07/31/2019										
This Action:						26,150				
Total:						26,150				
Work Plan / Cost Estimate Approvals										
Contractor WP Dated:				Cost/Fee			LOE:			
Cumulative Approved:				Cost/Fee			LOE:			
Work Assignment Manager Name Louis Blume							Branch/Mail Code:			
_____ (Signature) (Date)							Phone Number: 312-353-2317			
_____ (Signature) (Date)							FAX Number:			
Project Officer Name Nancy Parrotta							Branch/Mail Code:			
_____ (Signature) (Date)							Phone Number: 202-564-5260			
_____ (Signature) (Date)							FAX Number:			
Other Agency Official Name							Branch/Mail Code:			
_____ (Signature) (Date)							Phone Number:			
_____ (Signature) (Date)							FAX Number:			
Contracting Official Name Donna Reinhart							Branch/Mail Code:			
_____ (Signature) (Date)							Phone Number: 513-487-2114			
_____ (Signature) (Date)							FAX Number:			

PERFORMANCE WORK STATEMENT
CSRA EP-C-15-012
Work Assignment No. 03-14
Period of Performance: 8/1/18-7/31/19

I. ADMINISTRATIVE:

A. Title: Support to EPA's Great Lakes National Program Office

B. Work Assignment Manager:
Louis Blume

Alternate Work Assignment Manager:
Eric Osantowski

Great Lakes National Program Office
(GLNPO)
77 West Jackson Boulevard (MC: G-9J)
Chicago, IL 60604
312-353-2317
blume.louis@epa.gov

Great Lakes National Program Office
(GLNPO)
77 West Jackson Boulevard (MC: G-9J)
Chicago, IL 60604
312-353-1373
osantowski.eric@epa.gov

Louis Blume serves as the WACOR and Dr. Eric Osantowski serves as the Alternate WACOR. There are 3 Task Managers including 1) Elizabeth Murphy for the Great Lakes Fish Monitoring and Surveillance Program, 2) Dr. Eric Osantowski for the Biology and Limnology Programs, and 3) Dr. Thomas Kevin O'Donnell for the Coastal Wetlands Monitoring Program. Technical Direction for all programs will be provided by the WACOR.

Contract PWS Paragraph: 2.0

C. Quality Assurance:

Tasks 2, 3, 4, 5, and 6 in this work assignment require quality assurance (QA). Collection, use and analysis of data will be identical to the procedures described in the Project-Specific Quality Assurance Project Plan (PQAPP) completed under tasks 1, 2, 3, 4, 5, 6 and 7 of WA 02-14, consistent with the Agency's Quality Assurance (QA) requirements, appending the Contract Quality Assurance Project Plan (QAPP). The project specific QA requirements must be addressed in the monthly progress reports as specified under Task 0, below.

D. Background:

U.S. EPA's Great Lakes National Program Office (GLNPO) was created in 1978 to fulfill the United States' obligation under the Great Lakes Water Quality Agreement (GLWQA) with Canada. Within EPA, GLNPO is responsible for monitoring the condition of the waters of the Great Lakes and working to protect and restore the integrity of the nation's Great Lakes water resources, which serve as critical source waters for drinking water systems, and are a unique and symbolic national treasure that cross our national borders.

GLNPO coordinates U.S. efforts with Canada under the GLWQA to restore and maintain the chemical, physical and biological integrity of the Great Lakes Basin Ecosystem, which includes Lakes Superior, Michigan, Huron, Erie, and Ontario. GLNPO brings together federal,

state, tribal, local, and industry partners under the strategic framework of the Great Lakes Restoration Initiative (GLRI) to accomplish the objectives of GLRI action plan which in turn fulfills the aims of the GLWQA. GLNPO's responsibilities include:

- remediate contaminated sediments under the Great Lakes Legacy Act;
- prevent pollution and work to reduce persistent toxic chemicals, as well as to identify emerging contaminants;
- identify, protect, and restore important habitats;
- monitor and report on environmental status and trends;
- provide assistance for community-based Remedial Action Plans for Areas of Concern and for Lakewide Management Plans;
- use our funding to assist Great Lakes partners through grants, interagency agreements, and contracts, and
- coordinate and communicate with a wide variety of partners to achieve environmental progress.

GLNPO administers ongoing monitoring programs, conducts special studies to address new impacts of concern, implements sediment assessment and remediation activities, and is involved in several large scale cooperative studies. GLNPO assists Great Lakes partners (including federal, state, tribal, local, educational, and industry organizations) in these areas through technical assistance and coordination, as well as grants, interagency agreements, and contracts.

GLNPO has primary responsibility within the U.S. for conducting surveillance monitoring of the offshore waters of the Great Lakes. This monitoring is intended to fulfill provisions of the Great Lakes Water Quality Agreement (International Joint Commission, 1978) calling for periodic monitoring of the lakes to: 1) assess compliance with jurisdictional control requirements; 2) provide information on non-achievement of agreed-upon water quality objectives; 3) evaluate water quality trends over time; and 4) identify emerging problems in the Great Lakes Basin Ecosystem. GLNPO's base monitoring program involves semi-annual Water Quality Surveys of all five lakes to meet the surveillance monitoring requirements consisting of the Biology and Limnology Programs. Each summer GLNPO also conducts an intensive survey of dissolve oxygen (DO) concentrations in Lake Erie. GLNPO also oversees the Great Lakes Fish Monitoring Program to measure the contaminant levels of various organic substances in lake trout in the Great Lakes ecosystem and the Coastal Wetland Monitoring Program to assess and report on wetland conditions across the Great Lakes.

In support of these requirements, this contract supports the nation's drinking and wastewater infrastructure, collectively known as the Water Sector, in being informed, coordinated, and prepared to prevent, detect, respond to, and recover from terrorist attack and other intentional acts, natural disasters, and other hazards (referred to as the "all hazards" approach), which may also occur, including the needs and challenges posed by natural disasters, catastrophic events, adaptation and impacts of climate change, floods, earthquakes, pandemic illness, and any other events which impact the safety and availability of our water supply.

II. OBJECTIVE:

The purpose of this work assignment is to provide support to GLNPO in its efforts to: develop and implement GLNPO's Quality program; design, implement, interpret and report on environmental monitoring programs and special studies; and support its mission to lead and coordinate United States efforts to protect and restore the Great Lakes.

This work assignment provides quality management, scientific, data management, modeling, and technical support to review, plan, document, conduct, interpret, track, and report on environmental monitoring projects and other studies. The Great Lakes - Superior, Michigan, Huron, Erie, and Ontario - form the largest surface freshwater system on the Earth. More than 30 million people live in the Great Lakes basin, and the daily activities of these people, from the water consumed to the waste returned, directly affects the Great Lakes environment. This work assignment supports GLNPO activities in protecting and restoring the nation's drinking water, in being informed, coordinated and prepared to prevent, detect, respond to and recover from attacks and natural disasters. This work assignment also supports international commitments such as the bi-national waterway strategies with Canada.

The contractor shall provide quality management, scientific, data management, modeling, and technical support to review, plan, document, conduct, interpret, track, and report on environmental monitoring projects and other studies for EPA review and decision.

Under this work assignment the contractor shall be tasked with supporting the design and implementation of environmental monitoring projects and other studies from the planning to the reporting stages. Contractor activities provide support to a variety of programs at GLNPO including the Quality Management Program, Great Lakes Fish Monitoring and Surveillance Program (GLFMSP), Great Lakes Biology Monitoring Program (GLBMP), Water Quality Survey of the Great Lakes Limnology (Limnology) Program, Coastal Wetland Monitoring Program (CWMP), Great Lakes Integrated Atmospheric Deposition Network (IADN), and Information and Records Management. Specifically, the contractor shall provide support in the following areas to the Tasks outlined in Section III:

Quality Management Support

The contractor shall support implementation of GLNPO's Quality Management program including developing and implementing tools to inventory, track, assess, and report on project planning and quality documentation for GLNPO programs and projects detailed in Section III as indicated by written technical direction provided by the WACOR. The contractor shall assist EPA with reviewing, evaluating, and implementing EPA Quality Policy directives, guidance documents and other supporting materials. The contractor shall provide quality management support to the Great Lakes Fish Monitoring and Surveillance Program, the Coastal Wetland Monitoring Program, the Integrated Atmospheric Deposition Network, and the Water Quality Survey of the Great Lakes, as well as other environmental monitoring programs and special studies. The contractor shall provide quality support to plan, document, conduct, evaluate, and report on environmental monitoring programs. Specific activities include:

- Conduct literature searches in support of the design of monitoring programs, interpretation of study data, and development of QA assessment parameters including data quality objectives
- Review and assess EPA Quality Policy initiatives, implementation and guidance

materials

- Assist in the development and revision of quality system documentation
- Develop and implement procedures and checklists to review quality system documentation
- Develop and implement tools to inventory, track, assess, and report on project planning and quality documentation for GLNPO projects
- Provide standard reports on quality system documentation status for all GLNPO funded projects
- Evaluate sampling, analytical, and geospatial data reporting standards, data reporting forms, and supporting documentation
- Assist in the development of programmatic data and process flow diagrams and similar program related documentation (e.g., infographics)
- Conduct data verification, data quality assessments, and data usability assessments and provide reports presenting the results of the reviews
- Develop, evaluate and implement statistical analyses in support of data quality assessments; create and maintain all supporting statistical programs
- Prepare QA reports for environmental monitoring and other study data
- Provide technical support for conducting on-site field or laboratory audits of EPA field contractors and contractor grantee laboratories and the laboratory aboard the Research Vessel Lake Guardian
- Provide technical and quality management support to review reports, journal articles, and related documents
- Provide general technical and quality assurance support to plan, document, and implement monitoring programs and other special studies

Information and Records Management Support

In support of Information and Records Management for GLNPO monitoring and special studies, the contractor shall maintain and operate existing information management systems to efficiently, securely, and systematically gather, store, and manipulate a variety of technical, environmental, statistical, scientific, quality, and laboratory information related to Great Lakes protection, characterization, evaluation, and remedial activities. The contractor shall assist EPA in planning and implementing information management systems based on detailed evaluation of existing systems, including expanding existing systems where appropriate. Specific activities include:

- Develop, document, and implement sampling, analytical, and geospatial data reporting standards, data reporting forms, and supporting documentation
- Maintain and operate existing information management systems of Great Lakes biological, chemical, ecological, geospatial, sediment, water quality, physical monitoring data, statistical, scientific, laboratory, security and other information (e.g., fish, zooplankton, phytoplankton, and benthos data)
- Develop and implement standardized evaluation of data submittals against requirements of study databases and provide standard reports on results of the evaluation
- Convert hardcopy and electronic field and analytical data into complete electronic files compliant with specific data standards including the Great Lakes Environmental Database (GLEND) and the Great Lakes Sediment Database (GLSED)

- Update databases with incoming data and revised data submissions track updates, and address schema changes, as appropriate
- Provide recommendations regarding data management and data reporting, including decision-criteria associated with sensitive (or confidential) data and non-standard data (e.g., data from benchmark or reference sites)
- Provide technical support regarding data management needs for Great Lakes initiatives, including linking program data to external data sets (e.g., Great Lakes Aquatic Habitat Framework), designing new data queries, and developing documentation to facilitate appropriate data use
- Refine and maintain secure, web enabled systems that provide secure interactive access for project leads and other interested parties to query data as well as preparing supporting documentation such as user guides and online help modules
- Maintain secure web interfaces, communication processes, and other systems including secure database and secure sharing frameworks
- Assist with input, maintenance, retrieval, analysis, reporting, and reformatting/integration and normalization of environmental data from EPA databases

Sampling and Analytical Support

The contractor shall provide sampling, analytical, and technical support to plan, document, and implement environmental monitoring projects and other special studies. This support will include assistance and guidance in designing monitoring programs and studies to characterize the frequency and occurrence of chemical and biological contaminants. As necessary, the contractor also shall conduct evaluations of the scientific literature and consult with subject experts to identify candidate or alternate design strategies and assist EPA in developing a comprehensive understanding and definition of sampling and analysis goals (such as data quality objectives). The contractor shall assist EPA in the development of statistically based sampling designs to accomplish these goals. The contractor also shall assist EPA in coordinating and implementing sampling efforts. This support shall include the developing, assembling, and distributing sampling kits and providing technical support to field sampling teams and laboratory personnel as directed by the EPA WACOR. The contractor shall provide such support to meet the specific programmatic needs of the Great Lakes program, including coordinating laboratory analysis with laboratories operating under contracts or grants with either EPA or with state partners in the Great Lakes basin. This may include support for studies on water, fish, and sediments from the open lakes or tributaries, bays, lagoons, point sources, atmospheric and other vectors that flow into the lakes. In performing these activities, the contractor shall subcontract with qualified, experienced laboratories in accordance with all applicable EPA and Federal Acquisition Regulations, if necessary. Provide support to GLNPO for program coordination, monitoring, evaluation, and execution. Specific activities include:

- Research, evaluate, develop, and implement sampling and analysis procedures to support environmental monitoring projects including all aspects of the Water Quality Survey and nearshore characterization using TRIAXUS towed undulator and associated instrumentation
- Develop, evaluate, and implement data quality objectives, statistical sampling designs, and systematic planning for data gathering and monitoring studies
- Provide general program coordination support such as contacting participants, maintaining communications with participants, resolving issues or discrepancies, etc.

- Coordinate sampling schedule with field sampling teams to ensure teams receive proper sampling kits and materials prior to field collection efforts
- Develop sampling kits for GLFMSP and other studies
- Coordinate laboratory analysis with laboratories operating under contracts or grants with either EPA or with state partners in the Great Lakes Basin
- Procure laboratory supplies
- Track supplies shipped to participant laboratories
- Coordinate with all parties and shipping companies, such as Federal Express, to ensure that proper shipping protocols are followed to avoid delays and holding time issues with samples
- Review preliminary data to identify any issues
- Address any issues that were observed during preliminary analyses
- Develop detailed study instructions and updates
- Track shipments to laboratories
- Provide ongoing daily technical support to laboratories
- Provide logistical support to participating laboratories
- Troubleshoot problems that arise
- Follow-up with laboratories to request additional information or clarify any notes or study results
- Data review
- Review primary elements to verify calculation accuracy
- Validate primary data against method- and study-specific requirements
- Contact laboratories to resolve any data issues (e.g., missing information, discuss QC results)
- Assess individual laboratory results
- Perform data analysis and assess performance against data quality objectives
- Provide storage space for sampling kit materials and supplies and freezer space for archived GLFMSP samples, and other study samples, when requested
- Provide fish homogenization support and other sample preparation support to GLFMSP and other studies
- Develop and maintain comprehensive sampling and analytical manuals containing current SOPs
- Create and maintain program documentation, tracking forms, field recording forms for WQS, GLFMSP and other studies
- Provide support to the Research Vessel Mudpuppy including: Observing sampling activities, providing Global Positioning System (GPS) software training, and updating SOPs

Statistical Support and Data Interpretation Support

The contractor shall provide statistical support in planning, documenting, implementing, assessing, and reporting on environmental monitoring projects, special studies, and other strategies to implement GLNPO's programmatic objectives. The contractor shall conduct statistical and geostatistical data analysis and interpretation, including applying GIS and visualization tools, to describe, evaluate, and present environmental conditions. The contractor shall develop, evaluate, document, and apply environmental models to predict environmental conditions based on available data. Specific activities include:

- Assist with the development of data quality objectives and implementation of systematic planning for studies collecting or using environmental data, including assisting in development of statistical sampling designs and calculating statistical power and confidence associated with possible design scenarios
- Write and maintain automated programs for conducting statistical analysis of study data
- Provide summary and graphical representations of statistical data assessments for use in developing reports
- Design and conduct modeling and statistical analyses, such as parametric analyses (including linear and nonlinear regression analysis, ANOVA, two-sample and paired tests) non-parametric analyses (including Sen regression analysis for detection and estimation of trends, Spearman rank correlations, Wilcoxon sign-rank and rank sum tests), and other statistical analyses and data interpretation strategies to support implementation and reporting of studies
- Develop, evaluate, and utilize algorithms to process satellite imagery and other remote sensing data for water quality and other environmental parameters
- Research, develop, and implement mathematical models and analyses to develop and evaluate temporal and spatial analysis of environmental parameters
- Evaluate available data for use in data interpretation and analysis, addressing data quality and scientific issues
- Research, identify, recommend, and implement appropriate statistical analyses to answer specific study questions
- Conduct geo-statistical analysis of environmental data including development, implementation, and evaluation of geo-statistical modeling efforts
- Provide summary and graphical representations of geo-statistical modeling results
- Present results of statistical analyses, modeling efforts, and other data interpretations strategies to EPA and project stakeholders
- Respond to technical questions regarding technical approaches, data interpretation strategies, and results
- Write and maintain programs for conducting statistical and geo-statistical analysis of project and QC data
- Assist EPA in interpreting and reporting environmental information using GIS
- Provide guidance on the statistical impacts of various aspects of environmental studies, including the effect of analytical precision, sensitivity and bias on study data and the ability to meet study goals
- Provide scientific, statistical, geo-statistical, and quality management support to evaluate, analyze, interpret and report on environmental data

When performing these activities, the contractor shall clearly specify the methods, procedures, assumptions, relevant citations, data sources, and data that support the results and any recommendations offered. Where applicable, the contractor also shall document alternative methods, procedures, and assumptions that were considered in the statistical analysis.

Development of Technical, QA, and Program Reports Support

The contractor shall assist EPA in developing comprehensive technical, quality assurance, and scientific reports on results of studies, strategies, and monitoring programs administered by

GLNPO. This support shall primarily consist of collecting, compiling, analyzing and presenting data and information that EPA may use in decision making processes. The contractor shall provide all documents for WACOR review and approval, prior to production of the final version. Specific activities include:

- Review, compile, and summarize historical and current information associated with environmental monitoring, environmental remediation, environmental modeling, and other projects
- Develop graphics, maps, and illustrations, presenting data, project information, and results of data interpretation, analysis, and modeling
- Develop draft reports (e.g., limnology report) documenting project details and objectives, results, interpretation of data, and conclusions for EPA review
- Integrate comments received from reviewers into revised versions as directed by EPA
- Produce final hardcopy reports and electronic versions of final reports suitable for distribution on EPA websites
- Develop presentations detailing project information and data, graphical illustrations and maps of project information and data, modeling results, program information, and other information associated with GLNPO initiatives
- Develop materials presenting data and other information on Great Lakes initiatives for distribution and presentation on EPA websites

Program Management Support

As directed by the EPA WACOR, the contractor shall assist EPA in coordinating and administering GLNPO programs. The contractor shall provide scientific, technical, analytical, and administrative support for programmatic projects and initiatives. Specific activities include:

- Develop and implement tools for tracking, documenting, archiving, and presenting program information
- Compile and analyze programmatic information in support of development of reports, web content, outreach materials, briefings and presentations
- Develop for EPA review, and implement approaches and procedures, based on EPA standard procedures and guidelines as appropriate, to compile, document, track, archive and record programmatic information

Meeting and Outreach Support

The contractor shall coordinate and support meetings, workgroups, and conferences on environmental monitoring projects and other studies including providing technical support to develop guidance documents, studies, reports, and other materials related to the activities performed under this contract. The contractor shall prepare all documents for WACOR review and approval, prior to production of the final version. Specific activities include:

- Develop technical documents (e.g., technical reports, data summaries, issue papers, briefing materials) to support EPA's analysis of technical issues and options related GLNPO programs
- Develop technical documents or outreach materials (e.g., fact sheets, brochures, presentations, guidance documents, training modules) to assist EPA Regions, States, and collaborators in implementing GLNPO programs
- Develop briefing materials and status reports related to GLNPO projects and support provided under this contract

- Assist EPA in disseminating information to stakeholders in the Great Lakes region
- Track communications and record interactions
- If requested by written technical direction from the EPA WACOR, identify and evaluate meeting locations; finalize meeting space logistics; finalize contract for meeting space; coordinate with meeting space personnel
- Recruit subject matter experts and set-up travel arrangements, consistent with EPA travel requirements
- Develop and facilitate registration materials
- Provide meeting facilitation, develop evaluation tools, take minutes, and distribute follow up materials
- If requested by written technical direction from the EPA WACOR, attending, presenting materials, or supporting EPA activities at technical workshops, conferences, symposiums, training sessions, or public meetings.

The contractor shall provide the support detailed above in support of specific tasks described in detail under Section III of this PWS.

In pursuit of these efforts, the contractor may be tasked with preparing a correlation summary comparing the results under this work assignment to the components of the Water Security Strategy framework.

This work will be completed commensurate with Sections 3.2 and 3.4 of the Contract Level PWS and will support the following Tasks identified in Section III:

III. TASK DETAIL:

The contractor shall perform the following tasks:

Task 0 - Work Plan, Progress evaluations, and Monthly Progress Reports

The contractor shall prepare a detailed work plan and budget for the accomplishment of the indicated tasks in accordance with the clause Work Assignments (EPAAR 1552.211-74). The work plan shall include a description of (a) proposed staff, (b) the number of hours and labor classifications proposed for each task, broken down to task level, to include both prime contractor and subcontractor labor, and (c) a list of deliverables, with due dates and schedule for deliverables.

In addition, the work plan shall specify that a Supplemental Project Specific Quality Assurance Project Plan (SQAPP) appending the Contract Level Quality Assurance Project Plan (QAPP) or a Project-Specific Quality Assurance Project Plan (PQAPP) is not required.

In addition, the contractor shall prepare a statement indicating that this WA is a continuation of WA 2-14. This task also includes monthly progress and financial reports, which are to be submitted pursuant to Attachment 2 of the contract. Monthly financial reports must include a table with the invoice level of effort (LOE) and costs broken out by the tasks in this WA. The monthly progress report shall indicate, in a separate QA section, whether significant QA issues have been identified and how they are being resolved. The contractor shall immediately notify

the EPA Contract Level Contracting Officer's representative (CLCOR) and EPA Work Assignment Contracting Officer's Representative (WACOR) if any changes to the collection and analysis of the data is needed and prepare a PQAPP accordingly.

The contractor shall immediately alert the EPA WACOR to any anticipated event under the work assignment which may result in incurring an estimated \$20,000 or more cost, funded by EPA, specific to that event (e.g., meeting or training). Those costs would include travel of prime and consultant personnel, planning and facilitation costs, audio/visual, and rental of venue costs. The EPA WACOR will prepare approval internal paperwork for the event and will advise the contractor when appropriate signatures have been obtained. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

Deliverables: Work plan, revised versions of PQAPPs, monthly progress and financial reports.

Task 1 - Quality Management Program

Based on written technical direction received from the EPA WACOR, the contractor shall support GLNPO's Quality Management program by reviewing, evaluating, and implementing EPA Quality Policy directives, guidance documents and other supporting materials as they pertain to GLNPO's program. The contractor shall conduct data verification, data quality assessments, and data usability assessments and provide reports presenting the results of the reviews. The contractor shall assist in the development and revision of quality system documentation. The contractor shall develop and implement procedures and checklists to review quality system documentation and develop and implement tools to inventory, track, assess, and report on project planning and quality documentation for GLNPO projects.

As directed by the EPA WACOR, the contractor shall assist EPA in conducting or coordinating peer reviews of program methodology, strategies, methods, and protocols or other products related to this work assignment task. When coordinating reviews of study plans, protocols, methods, or third-party data (e.g., journals, grey literature, non-EPA databases, etc.), the contractor shall focus on determining the applicability of plans to specific EPA needs and shall make any appropriate recommendations to the EPA WACOR concerning their use in present form or with suggested modifications. The contractor shall ensure that in-house reviews are performed by qualified staff, and shall contact the author(s) of the subject materials to obtain additional information or clarifications about the material when such information is necessary to render a complete review.

The contractor shall provide or coordinate independent review of program methodology, strategies, methods, and protocols or other products related to this work assignment task as provided by written technical direction from the EPA WACOR. The contractor shall ensure that these independent reviews are conducted by technically qualified, independent reviewers in accordance with EPA's policy on peer review as outlined in EPA's Science Policy Council Handbook on Peer Review. In this effort, the contractor may identify and consult with experts in the specific area of interest to EPA. The contractor shall provide technical support for

conducting on-site field or laboratory audits of EPA field contractors and contractor grantee laboratories and the laboratory aboard the Research Vessel Lake Guardian.

Deliverables: Quality system documentation or project level quality documentation reviews in standardized formats, standard reports on quality system documentation status for all GLNPO funded projects, monthly status reports on quality system documentation, data quality assessment reports in standardized formats, audit checklists and other materials in support of field and laboratory audits, reports on field and laboratory audits, project-specific quality assurance reports, and technical support for conducting on-site field and laboratory audits. We estimate approximately 15-30 project level quality plan reviews, one field audit, and 20-30 data package reviews. Specific details on expectations of reviews is defined above and in the specific work assignment quality documents (previously approved).

Long distance travel to support tasking; for estimating, two long distance trips

- Sacramento, California for one staff for four days
- Chicago, IL for two staff for 2 days
- Chicago, IL for two staff for 4 days

Task 2 - Great Lakes Fish Monitoring and Surveillance Program

GLNPO's Great Lakes Fish Monitoring and Surveillance Program (GLFMSP) is a long term monitoring program designed to examine the health of fish and fish-consuming wildlife through trend analysis, improve understanding of contaminant cycling throughout food webs in the Great Lakes, and screen for emerging chemicals in fish tissue to help identify new chemicals for future trend analysis. Fish are collected at two sites in each of the Great Lakes with sites alternating within each lake annually. Fish and other samples (e.g., benthic invertebrates, water samples) are also collected at both GLFMSP collections sites within the Lake of the Year (LOY) as determined by the Cooperative Science and Monitoring Initiative (CSMI). Samples collected for the GLFMSP are analyzed for several different contaminants including polychlorinated biphenyls (PCBs), polybrominated diphenyl ethers (PBDEs), mercury, hexabromocyclododecane (HBCD), perfluorinated chemicals (PFCs), Toxaphene, chlordanes, and other organochlorine compounds.

Based on technical direction from the EPA WACOR, the contractor shall provide support as required from the support areas identified in Section II. Types of activities to be performed by the contractor include:

- Creating and maintaining program documentation, tracking forms, field recording forms
- Developing and evaluating sampling designs
- Developing, assembling and distributing sampling kits
- Providing storage space for sampling kit materials and supplies and freezer space for archived samples
- Providing fish homogenization and other sample preparation support
- Procuring and providing oversight of homogenization laboratory
- Supporting sample delivery trips from the sample preparation laboratory to the sample analytical laboratory
- Operating and maintaining data management systems to support data submission, assessment, interpretation and archiving

- Providing compiled data in response to data requests
- Conducting data analysis for GLFMSP (fish aging data)
- Processing and upload of project data into the GLFMSP Database and Great Lakes Environmental Database (GLENDa)
- Providing technical support for webinars and teleconference meetings
- Preparing presentations and meeting minutes to support meeting and outreach tasks

Deliverables: Deliverables may include quality system documentation reviews in standardized formats, data quality assessment reports in standardized formats, audit checklists and other materials in support of field and laboratory audits, reports on field and laboratory audits, project-specific quality assurance reports, and technical support for conducting on-site field and laboratory audits.

The contractor shall develop program documentation which may include, but not limited to, forms, sample designs, SOPs, data summaries, reports, and graphical illustrations. The contractor shall develop technical documents, presentations/briefings, and meeting minutes. The contractor shall provide results from standardized evaluation of data submittals against requirements of study databases. Electronic files of hardcopy or electronic field and analytical data into complete electronic files compliant with specific data standards.

The contractor shall plan on conference participation and development of abstracts, presentations, and outreach materials.

Local travel to support tasking; for estimating, assume 40 local trips

Task 3 - Great Lakes Biology Monitoring Program

The Great Lakes Biology Monitoring Program (GLBMP) focuses on the Great Lakes lower food web. In aquatic ecosystems, the lower food web is comprised of microscopic plants, called phytoplankton, and invertebrate animals that may be fed on by fish.

Since 1983, the GLBMP has been assessing the health and condition of the lower food web. Changes in phytoplankton, zooplankton, benthos, Mysis, nutrients in sediments and grain size build a picture of the ecological health of the open waters of the Great Lakes. This information helps fishery and water quality managers determine how changes in lower food web communities may impact the fisheries and water quality in the Great Lakes. The program also searches for new aquatic invasive species within the zooplankton, phytoplankton, and benthic communities.

Based on technical direction from the EPA WACOR, the contractor shall provide support as required from the support areas identified in Section II. Types of activities to be performed by the contractor include:

- Developing and reviewing various technical, QA, and program management reports and other documentation
- Providing technical support and materials for conducting on-site field and laboratory audits

- Conducting statistical analysis of biological data in support of annual reports and publications
- Managing, processing and uploading biological project data into the Great Lakes Environmental Database (GLENDa) or other study databases
- Operating and maintaining data management systems to support data submission, assessment, interpretation and archiving
- Conducting data verification, data quality assessments, and data usability assessments and providing reports presenting the results of the reviews
- Providing compiled data in response to data requests
- Completing the inventory and assessment of biology and other related physical environmental samples and assist with sample management including move support
- Attending the regular (monthly or bimonthly) GLBMP meetings
- Preparing presentations and meeting minutes to support meeting and outreach tasks

Deliverables: Deliverables may include quality system documentation reviews in standardized formats, data quality assessment reports in standardized formats, audit checklists and other materials in support of field and laboratory audits, reports on field and laboratory audits, project-specific quality assurance reports, and technical support for conducting on-site field and laboratory audits. Also providing sample management support, including preparing space and moving samples.

Deliverables also may include results from standardized evaluation of data submittals against requirements of study databases; and electronic files of hardcopy or electronic field and analytical data into complete electronic files compliant with specific data standards. The contractor shall plan on conference participation and development of abstracts, presentations, and outreach materials.

Developing data summaries, reports and graphical illustrations detailing results of scientific, modeling, and statistical analysis of environmental data; reports detailing the technical approach, methods, procedures, assumptions, relevant citations, data sources, data and results of statistical analysis of environmental data; publications, technical documents, presentations/briefings, fact sheets, meeting agendas, meeting registration websites, and meeting minutes; and maps of sampling stations and monitoring data.

Long distance travel to support tasking; for estimating, assume six long distance trips

- Ithaca, NY for 1 staff for 2 days
- Buffalo, NY for 2 staff for 2 days
- Chicago, IL for 2 staff for 4 days
- Milwaukee, WI for 2 staff for 5 days
- Milwaukee, WI for 2 staff for 2 days
- Duluth, MN for 2 staff for 2 days

Task 4 - Water Quality Survey of the Great Lakes Limnology Program

In accordance with the Great Lakes Water Quality Agreement, GLNPO has monitored a wide range of water quality parameters within the open waters of the Great Lakes annually since

1983 to evaluate the effectiveness of existing pollution control efforts and the need for additional research and/or regulatory efforts. In support of GLNPO's Open Lake Water Quality Survey (WQS), the Limnology Program, with support from cooperators, generates water column data, including chlorophyll a data, each spring and summer from the open lake basins (water greater than 30 meters in depth, or greater than 3 miles from shore.). The annual monitoring of the Great Lakes began in 1983 for Lakes Michigan, Huron, and Erie; in 1986 in Lake Ontario; and in 1992 for Lake Superior. GLNPO also annually monitors the oxygen and temperature profiles at 10 stations in the Central Basin of Lake Erie during the stratified season to assess water quality trends and measure progress made in achieving water quality improvements. These data are used by government and private stakeholders to (1) analyze trends in water quality analytes; (2) determine the response of the Great Lakes to natural and anthropogenic changes in the ecosystem; and (3) evaluate the effectiveness of existing pollution control efforts and the need for additional research and/or regulatory efforts. The WQS Quality Assurance Project Plan (QAPP) entitled U.S. EPA Great Lakes National Program Office Open Lake Water Quality Sampling Surveys and Dissolved Oxygen (DO) Survey QAPPs entitled Dissolved Oxygen and Temperature Profiles for the Central Basin of Lake Erie and Moored Dissolved Oxygen Monitoring Project provide additional detail on the survey designs, sample collections, data quality objectives and quality control procedures conducted across all steps of the data management processes.

Based on technical direction from the EPA WACOR, the contractor shall provide support as required from the support areas identified in Section II. Types of activities to be performed by the contractor include:

- Providing data quality assessments (includes narrative detailing results of assessment)
- Conducting statistical analysis of limnological data in support of annual reports
- Developing draft reports documenting project details and objectives, results, interpretation of data, and conclusions for EPA review
- Processing and upload of project data into the Great Lakes Environmental Database (GLENDa)
- Providing of compiled data in response to data requests
- Providing technical support for webinars and teleconference meetings
- Preparing presentations and meeting minutes to support meeting and outreach tasks
- Providing technical support to information and database development activities

Deliverables: Deliverables may include data quality assessment reports in standardized formats and project-specific quality assurance reports. The contractor shall assume 2-3 project level quality plan reviews and 5-10 data package reviews.

Maintenance and operation of existing information management systems; processing submitted data into EPA standard formats, such as the Great Lakes Environmental Database (GLENDa) Standard; standard reports on data submission evaluation; electronic files of hardcopy or electronic field and analytical data into complete electronic files compliant with specific data standards; providing assistance to GLNPO on uploading datasets so they are publicly available through agency CDX and WQX connections. Assist the GLNPO Open Lake Limnology Monitoring Program with database queries that allow easy access by GLNPO and GLRI

associated scientists and maintains a historical version controlled record for eventual public dissemination.

Developing data summaries, reports and graphical illustrations detailing results of scientific, modeling, statistical, and geostatistical analysis of environmental data; reports detailing the technical approach, methods, procedures, assumptions, relevant citations, data sources, data and results of statistical and geostatistical analysis of environmental data; and maps of sampling stations and monitoring data.

Development, assembly and distribution of quality system documentation including documentation of data quality objectives and statistical sampling designs.

The contractor shall develop publications, technical documents, presentations/briefings, meeting agendas, and meeting minutes.

Long distance travel to support tasking; for estimating, assume 2 long distance trips

- Chicago, IL for 2 staff for 2 days
- Chicago, IL for one staff for 4 days

Task 5 - Coastal Wetland Monitoring Program

The Great Lakes Coastal Wetland Monitoring Program (CWMP) is a collaboration of federal agencies, states, and academic partners in both the United States and Canadian sides of the Great Lakes. This basin-wide, collaborative approach allows for major coastal wetlands throughout the entire Great Lakes to be sampled on a rotating basis over 5 years using a comprehensive, standardized procedure. Since the program began, over 1,000 wetland sites have been visited, resulting in 140,000 acres of wetland habitat monitored.

The CWMP generates diverse and substantial amounts of quantitative and qualitative data characterizing the presence and abundance of amphibians, birds, fish, macroinvertebrates, and vegetation in wetlands of the Great Lakes that are under the influence of changing lake water levels, either through surface or subsurface interactions. The CWMP also monitors field water quality, including, but not limited to, temperature, dissolved oxygen, pH, specific conductivity, clarity, and concentrations of various nutrients. CWMP data are collected yearly and used to gauge the health of Great Lakes coastal wetlands and monitor the status, long-term trends, and habitat conditions of coastal wetlands, including impacts associated with on-going restoration projects.

Based on technical direction from the EPA WACOR, the contractor shall provide support as required from the support areas identified in Section II. Types of activities to be performed by the contractor include:

- Developing and reviewing various technical, QA, and program management reports
- Providing technical support and materials for conducting on-site field and laboratory audits
- Maintaining and operating existing information management systems and tools, including GLNPO's Access database that maintains a copy of the CWMP data and ESRI ArcGIS projects
- Developing documentation to facilitate appropriate data use

- Providing technical support in designing queries to leverage CWMP survey data and calculated index of biotic integrity (IBI) metrics and scores, which are used to describe ecological health of the Great Lakes coastal wetlands
- Providing subject matter expertise in linking external programmatic data with data collected and generated by the CWMP Cooperator
- Conducting data analysis and providing modeling results for monitoring and assessment studies
- Presenting results in data summaries and visualizations, technical reports, and maps
- Providing technical support for webinars and teleconference meetings
- Preparing presentations and meeting minutes to support meeting and outreach tasks

Deliverables: Deliverables may include quality system documentation reviews in standardized formats, data quality assessment reports in standardized formats, site visit inspection or audit checklists and other materials to support field and laboratory inspections or audits, and reports on field and laboratory inspections or audits.

Deliverables may include program-specific quality assurance reports, data management plans, documentation of data quality objectives and statistical sampling designs, and technical support to field crews conducting sampling and analysis.

Deliverables may include data summaries, reports and graphical illustrations detailing results of scientific, modeling, statistical, and geostatistical analysis of environmental data; reports detailing the technical approach, methods, procedures, assumptions, relevant citations, data sources, data and results of statistical and geostatistical analysis of environmental data; and maps of surveyed coastal wetlands.

Long distance travel to support tasking; for estimating, assume 2 long distance trips

- Chicago, IL for 2 staff for 2 days
- Sheboygan, WI for 1 staff for 3 days

Task 6 - Great Lakes Integrated Atmospheric Deposition Network

The Integrated Atmospheric Deposition Network (IADN) has been in operation since 1990, when Annex 15 of the Great Lakes Water Quality Agreement specified IADN by name. IADN is a network of stations that monitor concentrations of persistent toxic chemicals in Great Lakes air and precipitation. Each Great Lake has one master station that offers the complete range of measurements. Ten satellite stations provide further details about levels of toxics in the air around the lakes. All but one of the Canadian satellite stations are precipitation-only. The U.S. satellite stations, IIT-Chicago on Lake Michigan and Cleveland on Lake Erie, provide the same monitoring as the master stations. They also provide useful information about levels of toxic substances in urban air and precipitation. IADN tracks the success of regional, national, and international chemical reduction plans. IADN tracks the success of regional, national, and international chemical reduction plans.

Based on technical direction from the EPA WACOR, the contractor shall provide support as required from the support areas identified in Section II. Types of activities to be performed by the contractor include:

- Providing technical support for webinars and teleconference meetings
- Conducting data verification, data quality assessments, and data usability assessments and providing reports presenting the results of the reviews
- Preparing presentations and meeting minutes to support meeting and outreach tasks
- Expanding the Data Submission site to meet the needs of the IADN data management program
- Expanding the Data Status site to meet the needs of the IADN program
- Providing a demonstration and training to use the Data Submission site for the GLNPO cooperators
- Providing support to the cooperators to submit their data to the site

Deliverables: Deliverables may include developing data summaries, reports and graphical illustrations detailing results of scientific, modeling, statistical, and geostatistical analysis of environmental data; reports detailing the technical approach, methods, procedures, assumptions, relevant citations, data sources, data and results of statistical and geostatistical analysis of environmental data; and maps of sampling stations and monitoring data.

The contractor shall develop publications, technical documents, presentations/briefings, meeting agendas, and meeting minutes.

Task 7 – Information and Records Management

In support of Information and Records Management for GLNPO monitoring and special studies, the contractor shall maintain and operate existing information management systems to efficiently, securely, and systematically gather, store, and manipulate a variety of technical, environmental, statistical, scientific, quality, and laboratory information related to Great Lakes protection, characterization, evaluation, and remedial activities. The contractor shall assist EPA in planning and implementing information management systems based on detailed evaluation of existing systems, including expanding existing systems where appropriate.

The contractor shall assist EPA in developing and implementing records support by providing scientific, technical, quality assurance, and analytical support to GLNPO in organizing, analyzing, managing and interpreting scientific records. The scanned files may be loaded into an electronic system to be accessed by researchers. Based on technical direction from the EPA WACOR, the contractor shall provide support as required from the support areas identified in Section II. Types of activities to be performed by the contractor include:

- Develop, document, and implement sampling, analytical, and geospatial data reporting standards, data reporting forms, and supporting documentation
- Maintain and operate existing information management systems of Great Lakes biological, chemical, geospatial, sediment, physical monitoring data, statistical, scientific, laboratory, security and other information
- Develop and implement standardized evaluation of data submittals against requirements of study databases and provide standard reports on results of the evaluation
- Convert hardcopy and electronic field and analytical data into complete electronic files compliant with specific data standards GLEND A
- Update databases with incoming data and revised data submissions and track updates

- Provide recommendations regarding data management and data reporting
- Provide technical support regarding data management needs for Great Lakes Initiatives
- Create, refine and maintain secure, web enabled systems that provide secure interactive access for project leads and other interested parties to query data as well as preparing supporting documentation such as user guides and online help modules
- Develop and maintain secure web interfaces, communication processes, and other systems including secure database and secure sharing frameworks
- Assist with input, maintenance, retrieval, analysis, reporting, and reformatting/integration and normalization of environmental data from EPA databases
- Overall project planning, tracking, and reporting: review, interpret, organize, and categorize hard copy and electronic documents; develop and implement processes for management and disposition (digitization, archiving to digital repository or to Federal Records Center, or disposal) by category
- Make digitized science records and SOPs to make them available electronically to GLNPO staff or outside researchers
 - Provision of compiled data in response to data requests
- Assist with compiling the historical record of the Water Quality Survey (WQS) Standard Operating Procedures (SOPs) and Quality Assurance Project Plans (QAPPs)
- Complete the inventory and assessment of physical environmental samples

Deliverables: Deliverables may include processes for managing records according to EPA policy; categorized, organized, digitized, and digitally archived records with supporting documentation; inventories of records; provision of updated environmental databases, information management and records management systems; and status reports on data processing, data and records uploading, and records management guidance documentation of data reporting standards; processed data in EPA standard formats, such as the Great Lakes Environmental Database Standard, and standard reports on data submission evaluation; assistance on uploading data sets including benthic, phytoplankton, and zooplankton datasets so they are publicly available through agency CDX and WQX connections; refinements and customization of data and records management systems to include queries that allow easy access by GLNPO and GLRI collaborators and reports; technical documents, presentations/briefings, meeting agendas, and meeting minutes.

IV. SCHEDULE OF DELIVERABLES:

Specific deliverables, by Task, are detailed in the table below. All work will be determined by written technical direction.

This work requires experience in the development and manipulation of basic geospatial datasets, map layer, geodatabases and ESRI map application templates. It is necessary for the contractor to have familiarity with EPA's Geoplatform, or a similar platform at another federal agency or department.

TASK No.	DELIVERABLE	DATE DUE TO EPA
Task 0 - Work Plan, Progress evaluations, and Monthly Progress Reports		

Workplan and budget	According to contract
Monthly progress reports	Monthly
Task 1 - Quality Management Program	
Data quality assessments. Includes narrative detailing results of assessment	30 days after receipt of a complete data set
Technical support and materials for conducting on-site field and laboratory audits	To be established by written technical direction
Technical support to evaluate data analysis and modeling results for monitoring and assessment studies presented in data summaries and visualizations, technical reports, and maps	To be established by written technical direction
Quality plan reviews	10 days after receipt
Presentations and meeting minutes to support meeting and outreach tasks	14 days after provision of technical direction
Task 2 - Great Lakes Fish Monitoring and Surveillance Program	
Data management support including processing and upload of project data into GLFMSP database	To be established by written technical direction
Data quality assessments. Includes narrative detailing results of assessment	30 days after receipt of a complete data set
Technical support and materials for conducting on-site field and laboratory audits	To be established by written technical direction
Data Management support including maintenance of the SharePoint Data Submission and Data Status sites	To be established by written technical direction
Processing and upload of GLFMSP, and biological project data into the Great Lakes Environmental Database	To be established by written technical direction
Development and implementation of specific program queries for existing systems	To be established by written technical direction
Provision of compiled data in response to data requests	To be established by written technical direction
Evaluation of sampling designs	To be established by written technical direction
Development, assembly and distribution of sampling kits for the GLFMSP	To be established by written technical direction

Procurement and oversight of homogenization laboratory for the GLFMSP	To be established by written technical direction
Data analysis and modeling results for monitoring and assessment studies presented in data summaries and visualizations, technical reports, and maps	To be established by written technical direction
Technical, QA, and Program Management Reports	To be established by written technical direction
Program Management Support	To be established by written technical direction
Provide technical support for webinars and teleconference meetings	To be established by written technical direction
Presentations and meeting minutes to support meeting and outreach tasks	14 days after provision of technical direction
Task 3 – Great Lakes Biology Monitoring Program	
Data quality assessments. Includes narrative detailing results of assessment	30 days after receipt of a complete data set
Technical support and materials for conducting on-site field and laboratory audits	To be established by written technical direction
Data Management support including maintenance of the SharePoint Data Submission, Information Request and Data Status sites	To be established by written technical direction
Data analysis and modeling results for monitoring and assessment studies presented in data summaries and visualizations, technical reports, and maps	To be established by written technical direction
Processing and upload of GLBMP, and biological project data into the Great Lakes Environmental Database and study databases	To be established by written technical direction
Provision of compiled data in response to data requests	To be established by written technical direction
Conduct statistical analysis and interpretation of biological data in support of annual reports and publications	To be established by written technical direction
Development and implementation of specific program queries for existing systems	To be established by written technical direction

Evaluation of sampling designs	To be established by written technical direction
Technical, QA, and Program Management Reports	To be established by written technical direction
Processing and upload of project data into study database	To be established by written technical direction
Program Management Support	To be established by written technical direction
Provide technical support for webinars and teleconference meetings	To be established by written technical direction
Presentations and meeting minutes to support meeting and outreach tasks	14 days after provision of technical direction
Task 4 – Water Quality Survey of the Great Lakes Limnology Program	
Data quality assessments. Includes narrative detailing results of assessment	30 days after receipt of a complete data set
Processing and upload of project data into the SeaBird data System	To be established by written technical direction
Data Management support including maintenance of the SharePoint Data Submission, Information Request and Data Status sites	To be established by written technical direction
Data analysis and modeling results for monitoring and assessment studies presented in data summaries and visualizations, technical reports, and maps	To be established by written technical direction
Processing and upload of project data into the Great Lakes Environmental Database and study databases	To be established by written technical direction
Development and implementation of specific program queries for existing systems	To be established by written technical direction
Provision of compiled data in response to data requests	To be established by written technical direction
Conduct statistical analysis of limnological data in support of annual reports	To be established by written technical direction
Development of sampling designs	To be established by written technical

	direction
Evaluation of sampling designs	To be established by written technical direction
Technical, QA, and Program Management Reports	To be established by written technical direction
Program Management Support	To be established by written technical direction
Provide technical support for webinars and teleconference meetings	To be established by written technical direction
Presentations and meeting minutes to support meeting and outreach tasks	14 days after provision of technical direction
Task 5 – Coastal Wetland Monitoring Program	
Documentation descriptive of overall or focused data collection, review, management, and analysis procedures	To be established by written technical direction
Updated version of the EPA Great Lakes CWMP Access Database, following the Spring release of program data by the CWMP Cooperator	To be established by written technical direction
Data analysis and modeling results for monitoring and assessment studies presented in data summaries and visualizations, technical reports, and maps	To be established by written technical direction
Development of sampling designs	To be established by written technical direction
Evaluation of sampling designs	To be established by written technical direction
Technical, QA, and Program Management Reports	To be established by written technical direction
Program Management Support	To be established by written technical direction
Provide technical support for webinars and teleconference meetings	To be established by written technical direction
Presentations and meeting minutes to support meeting and outreach tasks	14 days after provision of technical direction

Task 6 – Great Lakes Integrated Atmospheric Deposition Network	
Data quality assessments. Includes narrative detailing results of assessment	30 days after receipt of a complete data set
Data analysis and modeling results for monitoring and assessment studies presented in data summaries and visualizations, technical reports, and maps	To be established by written technical direction
Data Management support including maintenance of the SharePoint Data Submission, Information Request and Data Status sites	To be established by written technical direction
Technical, QA, and Program Management Reports	To be established by written technical direction
Program Management Support	To be established by written technical direction
Provide technical support for webinars and teleconference meetings	To be established by written technical direction
Presentations and meeting minutes to support meeting and outreach tasks	14 days after provision of technical direction
Task 7 – Information and Records management	
Development of automated and semi-automated technical, QA, and Program Management Reports	To be established by written technical direction
Program Management Support including updates to the Information Management section of the GLNPO Quality Management Plan and other documentation	To be established by written technical direction
Data management including operation and maintenance of SharePoint sites including the Data Submission, Information Request, and Data Status sites	To be established by written technical direction
Technical support to evaluate and update automated systems including evaluating automated calculations and outputs	To be established by written technical direction
Provide technical support for webinars and teleconference meetings	To be established by written technical direction
Development of data management plans for monitoring projects including finalizing the Lake Erie Phosphorus Loading Estimation program	To be established by written technical direction
Data management support including processing and upload of monitoring data into study databases, and provision of compiled data in response to data requests	To be established by written technical direction

Presentations and meeting minutes to support meeting and outreach tasks	14 days after provision of technical direction
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V. MISCELLANEOUS:

Software Application Files and Accessibility:

Software Application files, if delivered to the Government, shall conform to the requirements relating to accessibility as detailed to the 1998 amendments to the Rehabilitation Act, particularly, but not limited to, § 1194.21 Software applications and operating systems and § 1194.22 Web-based intranet and internet information and applications. See: <http://www.section508.gov/>

Preferred text format:	MS Word, 8.0 or higher (Office 2007 or higher)
Preferred presentation format:	Power Point, Office 2007 or higher
Preferred graphics format:	Each graphic is an individual GIF file
Preferred portable format:	Adobe Acrobat, version 6.0 or higher

The WACOR shall identify which of delivered products will require 508 compliance.

VI. TRAVEL

The contractor shall anticipate contractor trips in support of this WA over the duration of the performance period. Travel will be directly related to the scope of this Work Assignment.

VII. MEETINGS, CONFERENCES, TRAINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than \$20,000, shall be obtained by the EPA CL-COR as needed and provided to the Contracting Officer (CO). Work under conference related activities and expenses shall not occur until this approval is obtained and provided by the EPA CL-COR.

VIII. CONTRACTOR IDENTIFICATION

Contractor personnel shall always identify themselves as contractor employees by name and organization and physically display that information through an identification badge. Contractor personnel are prohibited from acting as the Agency's official representative. The contractor shall refer any questions relating to the interpretation of EPA policy, guidance, or regulation to the CO, CL-COR and/or WACOR.

IX. PRINTING

All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

X. Technical Direction

All direction under this WA will be provided as written technical direction from the WACOR, or Alternate WACOR, as appropriate. If provided first as verbal technical direction to the contractor, it will be confirmed in writing within 5 calendar days, with a copy to the Contract Level Contracting Officer's Representative (CL COR) and the Contracting Officer (CO), and is subject to the limitations of the technical direction contract clause. Each initial deliverable shall be provided to the EPA WACOR in draft form for review and comment. The contractor shall incorporate WACOR review comments into revisions of the drafts. All drafts and final reports shall be approved by the WACOR.

XI. QUALITY ASSURANCE SURVEILLANCE PLAN:

All task(s) identified in the performance work statement above are subject to review and approval by the EPA WACOR based on the general guidelines of the contract quality assurance surveillance plan (Attachment 4 of the contract) regarding: Programmatic, cost control, timeliness/deliverables, and document development standards.

<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <h1 style="margin: 0;">EPA</h1> </div> <div style="text-align: center;"> <p>United States Environmental Protection Agency Washington, DC 20460</p> <h2 style="margin: 0;">Work Assignment</h2> </div> </div>		<p>Work Assignment Number 03-16</p> <p><input type="checkbox"/> Other <input type="checkbox"/> Amendment Number:</p>																																																																		
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<p>Comments:</p> <p>In accordance with clause B.1 of the contract, immediate start is hereby approved for this work assignment beginning on August 1, 2018. If the work plan is not approved within 35 calendar days after receipt of the work plan, the contractor shall stop work.</p>																																																																				
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<p>Project Officer Name Nancy Parrotta</p> <div style="border-top: 1px solid black; margin-top: 20px; display: flex; justify-content: space-between;"> (Signature) (Date) </div>		<p>Branch/Mail Code:</p> <p>Phone Number: 202-564-5260</p> <p>FAX Number:</p>																																																																		
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<p>Contracting Official Name Donna Reinhart</p> <div style="border-top: 1px solid black; margin-top: 20px; display: flex; justify-content: space-between;"> Donna Reinhart 5/30/18 </div> <div style="display: flex; justify-content: space-between; font-size: x-small;"> (Signature) (Date) </div>		<p>Branch/Mail Code:</p> <p>Phone Number: 513-487-2114</p> <p>FAX Number:</p>																																																																		

PERFORMANCE WORK STATEMENT
CSRA EP-C-15-012
Work Assignment No. 03-16
Period of Performance: 8/1/18-7/31/19

I. ADMINISTRATIVE:

A. Title: Support for the NCEA Websites and Databases

B. Work Assignment Manager:

Maureen Johnson
Office of Research and Development,
National Center for Environmental
Assessment, Immediate Office (IO)
1200 Penn Ave, NW, MC-8201R
Washington, DC 20460
202-564-6738

Alternate Work Assignment Manager:

Susan Rieth
Office of Research and Development,
National Center for Environmental
Assessment, Integrated Risk Information
System (IRIS) Division
1200 Penn Ave, NW, MC-8602R
Washington, DC 20460
2020564-8334

C. Quality Assurance:

The tasks in this work assignment do not require environmental measurements. Consistent with the Agency's quality assurance (QA) requirements, the contractor does not need to supplement the Contract Level Quality Assurance Project Plan (QAPP) or to prepare a Project-Specific Quality Assurance Project Plan (PQAPP). The contractor shall immediately notify the Project officer of any significant QA issues, and how they are being resolved addressed, in the monthly progress reports as specified below under Task 0.

D. Background:

The U.S. Environmental Protection Agency (EPA or Agency) has established the National Center for Environmental Assessments (NCEA) to provide the public with access to the best science in the form of research products related to human health and ecological risk assessments. On target with this, one of NCEA's critical goals is to support the ORD Research Priorities, these are new robust research programs that in varying levels of need, depend on the strong presence of NCEA's websites like the Exposure Factors Program/Hand Book and tool box (EPA-Expo-Box), the Benchmark Dose Software (BMDS), the Casual Analysis/Diagnosis Decision Information System (CADDIS), the Provisional Peer-Reviewed Toxicity Values (PPRTVs) database, the Integrated Risk Information System (IRIS) database, the EPA RISK assessment website (which includes links to most of NCEA's products and publications), and various other NCEA websites that include guidance, training, and workshop materials that capture the full portfolio of NCEA's outreach initiatives.

II. OBJECTIVE:

The primary goal of all these systems and web sites is to enhance preparedness, utility and business resiliency, detection, response, and recovery efforts relative to assessing risk in the environment, vulnerabilities, and threats if a natural calamity or incident occurs. Additionally, NCEA seeks innovative ways to distribute information to the targeted audience by utilization of emerging technologies especially in the area of Web 2.0. This not only allows NCEA to be more “green” in cutting back on the less environmentally friendly methods of communications, but also to demonstrate its alignment with the administration’s goals of making agency services and information more accessible to citizens so they can see value in their government.

Risk Assessment is one of the key areas of environmental protection all agency programs focus on and each of the systems mentioned above have a strong tie to assessments of water quality and human health. In each of these programs, NCEA seeks the best way to get information out to the correct and varied target audiences from our websites. We also require support for the dissemination of guidance and information related to the understanding of climate change impacts, adaptation, and mitigation measures within the mission of EPA.

The purpose of this work assignment is to: support new projects, on-going maintenance and long-term operation of all NCEA websites and databases in support of communicating, educating, and sharing the mission of the NCEA and the EPA. NCEA is the principal organization for production of EPA’s reports on human health and ecological risk assessments in the Office of Research and Development. Therefore, it is imperative that NCEA’s websites offer streamlined pathways (quick easy to use, task oriented and topical) to this research, models, and data technology. Based on our annual website statistics it is evident that NCEA’s websites (and dynamic databases driving them) are critical to supporting thousands of researchers all around the world.

The expectations of this work assignment is for improved designs of the NCEA websites and database to meet our stakeholders and external (and internal) needs while complying with the latest Agency web guidance and web initiatives. To that end, this work assignment requires improvements to the NCEA websites that will incorporate the agency’s OneEPA web template design efforts, reduce any redundant, outdated content (referred to by the EPA web-guide as “ROT”) on the website, and reduce the cost of maintenance and development on these sites through the use of new technology and Agency approved software.

The tasks described in this work assignment will outline the steps necessary to achieve the work assignment’s goals. Working together, the various tasks will complement one another to produce a more efficient, cohesive public experience that will improve the usefulness of the these NCEA websites and support the business processes of the NCEA staff and divisions.

This work will be completed commensurate with Sections 3.2 and 3.4 of the Contract Level PWS. The level of effort estimated for this work assignment is **4100 hours**.

To achieve this outcome, the contractor shall be expected to provide:

- 1) Operation and maintenance of the NCEA Database(s).

2) Development and maintenance of the NCEA websites based on Agency guidance, program changes, and new technology.

3) Web analytics for site usability/enhancement and improved design.

4) Technical support by a Subject Matter Expert (SME) with expertise to provide guidance on areas of toxicology (as it pertains to the IRIS, RISK and PPRTVs sites), database design or website training/development.

Requirements

In order to perform the work under this work assignment the contractor should have:

- 2 or more staff members who have accounts on Drupal.org and provide their user ID's in order to verify this work experience/activity in the Drupal forum environment. They also need to have a minimum of 4 years of experience with either managing a large-scale web site in Drupal or with engineering in a Drupal environment.
- 2 or more staff members on this work assignment who have accounts on EPA's Web mailing list or Editors-in-Chief mailing list to be knowledgeable with the EPA Web guidelines and standards of development. They should also have 1-2 years of experience with EPA's Drupal environment and have experience with the editor and webmaster roles in order to complete the task directives within this work assignment.
- 1 or more staff members on this work assignment with 2 or more years of experience in the following technologies: MySql Database Administration, Oracle Database Administration, Oracle Application Development, ColdFusion Application Development, JavaScript coding, and integrating dynamic application development with a Drupal website.
- 1 or more staff members with a Master's degree or higher in toxicology to provide guidance and input as needed for the IRIS, PPRTV and RISK websites.

The contractor should have staff that are skilled with the Drupal Web Content Management System (WCMS) software to have the ability to articulate design enhancements to the EPA Design Team (Office of Web Communication and Office of Environmental Information) in order to help improve the experience of visitors to the EPA websites under this work assignment.

III. TASK DETAIL:

The contractor shall perform the following tasks:

Task 0 - Work Plan Submission, WA Management and Reports:

The contractor shall prepare a detailed work plan and budget for the accomplishment of the indicated tasks in accordance with the clause Work Assignments (EPAAR 1552.211-74). The work plan shall include a schedule, staffing plan, level of effort (LOE), and cost estimate for

each task, the contractor's key assumptions on which staffing plan and budget are based, and qualifications of proposed staff. If a subcontractor(s) is proposed and subcontractors are outside the local metropolitan area, the contractor shall include information on plans to manage work and contract costs.

In addition, the work plan specifies that a Supplemental Project Specific Quality Assurance Project Plan (SQAPP) appending the Contract QAPP or a PQAPP is not required.

This task also includes monthly progress and financial reports. Monthly financial reports must include a table with the invoice LOE and cost amount broken out by the tasks included in this WA. In addition, this table should provide costs and estimates at the sub-task level and have the capability to track costs to the type of work performed. It is recommended that all costs associated with projects and/or work requests shall be reported in the monthly report as well as at an aggregate level. The work plan shall also provide an analysis of the existing and projected constraints, and the feasibility of accomplishing the project's purpose.

Secondly, the contractor shall participate in bi-weekly meetings to discuss open work requests under the various task in this work assignments, get technical clarification, or discuss any issues that may have come up since the assignments were given. As a result of these meetings, the contractor will submit meeting minutes with a list of assignments, and then at the end of the month, submit these as part of the monthly progress report. Assignments should be completed within a month or documented why there are delays.

The purposes of the progress reports are to list completed deliverables and accomplishments. The monthly report can also include details on the finished assignments, the steps toward completing the larger tasks as they are done, any problems they may have encountered, or any changes in the schedule for completing the work request. The contractor shall continually review the types of work requests that are assigned and propose improvements, striving to implement efficiencies in performance when complimentary requirements are issued or the process can be improved in the work that is done. The contractor shall assure that duplication of effort relative to other ongoing work assignments under this contract is not occurring.

Lastly, the contractor shall immediately alert the EPA WACOR to any anticipated event under the work assignment which may result in incurring an estimated \$20,000 or more cost, funded by EPA, specific to that event (e.g., meeting or training). Those costs would include travel of prime and consultant personnel, planning and facilitation costs, audio/visual, and rental of venue costs. The EPA WACOR will prepare approval internal paperwork for the event and will advise the contractor when appropriate signatures have been obtained. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

Deliverables: Work plan and monthly progress and financial reports.

Task 1 - Operations and support for the NCEA Databases:

With the vast number of reports, tools and websites that NCEA uses to serve content to the public we use several Oracle backend databases to manage many of these products. This first task will require the support, operation and maintenance of these databases. In addition, to database administration (adding users, managing roles, writing SQL scripts for database updates), the contractor will need to also maintain data entry screens for the EPA's maintenance of the content stored in these back-end systems. The current interfaces to these databases is through ColdFusion based Administration systems.

Sub-Task 1.1: Support of the NCEA Tables Residing in the EIMS Database

Support of this database includes on-going operations and maintenance to include, but not be limited to: new table development, retirement of tables/removal, data entry form improvements, system integration for better quality control, link checking, improved searching methods, exports, uploads, downloads, web analytics, or archiving retired content.

Sub-Task 1.1.1 Support for the RISK Application

Provide database administrative or dynamic application development (to front-end software to an Oracle database) for the RISK website and application. Provide operation and maintenance per specifications outlines in sub-task 1.1.

Sub-Task 1.1.2 Support for the EPA-Expo-Box Application

Provide database administrative or dynamic application development (to front-end software to an Oracle database) for the Expo-Box application. Provide operation and maintenance per specifications outlines in sub-task 1.1.

Sub-Task 1.1.3 Support for the EPA-Eco-Box Application

Provide database administrative or dynamic application development (to front-end software to an Oracle database) for the Eco-Box application. Provide operation and maintenance per specifications outlines in sub-task 1.1.

Sub-Task 1.1.4 Support for the Climate Change Applications

Provide database administrative or dynamic application development (to front-end software to an Oracle database) for any of the NCEA Climate Change Applications. Provide operation and maintenance per specifications outlines in sub-task 1.1.

Sub-Task 1.2: Support for the Integrated Risk Information System (IRIS) Database

Support of this database includes on-going operations and maintenance to include, but not be limited to: new table development, retirement of tables/removal, data entry form improvements, system integration for better quality control, link checking, improved searching methods, exports, uploads, downloads, web analytics, or archiving retired content.

Sub-Task 1.3: Support for the Provision Peer-Reviewed Toxicity Values (PPRTVs) Database

Support of this database includes on-going operations and maintenance to include, but not be limited to: new table development, retirement of tables/removal, data entry form improvements, system integration for better quality control, link checking, improved searching methods, exports, uploads, downloads, web analytics, or archiving retired content.

Sub-Task 1.4: Support for the Casual Analysis Diagnosis Decision Information System (CADDIS) Database

Support of this database includes on-going operations and maintenance to include, but not be limited to: new table development, retirement of tables/removal, data entry form improvements, system integration for better quality control, link checking, improved searching methods, exports, uploads, downloads, web analytics, or archiving retired content.

Deliverables: Scripts should be sent to the administrators in the NCC. The WACOR should be copied on all correspondence with the system administrators. Exports from the databases may be in the form of spreadsheets, scripts, or Oracle exports and should be sent directly to the WACOR and accounted for in the monthly progress reports.

Task 2 - Development to the NCEA websites based on Agency guidance, program changes, and new technology:

The contractor shall provide the following as it pertains to products from NCEA program:

- Provide maintenance for the NCEA Web sites, which includes site updates as necessary to comply with ORD and Agency Web requirements, and/or changes in the EPA server environment or in the supporting database(s).
- Provide other modifications or enhancements as specified in Technical Directives (TDs) throughout the period of performance, including enhancements of selected Drupal pages, addition of new static and dynamic web pages, and redesign of selected pages to:
 - Fulfill the mission of the Agency and any related Web initiatives
 - Improve the performance of the site,
 - Comply with Section 508 for Accessibility, and
 - Improve the usability based on recommendations from NCEA, ORD or Agency stakeholder feedback.
- Provide Section 508 compliant reports (in PDF format) for posting on the NCEA websites and databases.
- Verify Section 508 compliance of products generated from within NCEA.
- Provide support in the review the site for broken links, redundant, outdated, trivial (ROT) content, usability/focus groups, and other EPA initiatives to improve the function of the website.

The contractor shall be responsible for maintaining the NCEA Internet (and in some cases Intranet) websites and performing any related web support as requested. This task includes the following sub-tasks:

Sub-Task 2.1, Support for the Causal Assessment (CADDIS) Website

All new and major revisions to web pages will be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications will be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format,

standards and function of Internet and Intranet web pages. Additionally, the web pages on the CADDIS websites shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s), but it may include the waters of the US, mountaintop mining, conductivity, hydrofracking, and other ecological risk assessments topical websites sponsored by NCEA:

- <http://www.epa.gov/caddis> (or any future aliases this may be called)
- <http://www.epa.gov/bristolbay>
- <http://www.epa.gov/hf-study>

Sub-Task 2.2, Support for the EPA Climate Change/Adaptation Website(s)

All new and major revisions to web pages will be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications will be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages in this web area shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on any of the NCEA (Climate Change) websites shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <https://www.epa.gov/risk/global-change-research-program-products-and-publications> (or any future aliases this may be called)
- <https://www.epa.gov/climate-research> (or any future aliases this may be called)
- <https://www.epa.gov/ccwqa> (or any future aliases this may be called)

Sub-Task 2.2.1, Support for the Integrated Climate Land-Use (ICLUS) Website

All new and major revisions to web pages will be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications will be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the ISA website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <http://www.epa.gov/iclus> (or any future aliases this may be called)
- <https://globalchange.epa.gov> (or any future aliases this may be called)

Sub-Task 2.2.2, Support for the Traits Database and Website

All new and major revisions to web pages will be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications

will be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the ISA website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <https://www.epa.gov/risk/freshwater-biological-traits-database-traits> (or any future aliases this may be called)

Sub-Task 2.3, Support for the EPA Expo-Box (Expo-box) Website

All new and major revisions to Drupal web pages will be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications will be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the Expo-Box website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This sub-task includes providing support to the following website(s):

- <https://www.epa.gov/expobox> (or any future aliases this may be called)

Sub-Task 2.4, Support for the EPA-Eco-Box (Eco-box) Website

All new and major revisions to web pages will be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications will be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the Eco-Box website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <https://www.epa.gov/ecobox> (or any future aliases this may be called)

Sub-Task 2.5, Support for the Integrated Science Assessments (ISA) Website

All new and major revisions to web pages will be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications will be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the ISA, HERO or HAWC websites shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <http://www.epa.gov/isa> (or any future aliases this may be called)
- <https://hero.epa.gov/hero/> (or any future aliases this may be called)
- <https://hawc.epa.gov/hawc> (or any future aliases this may be called)

Sub-Task 2.6, Support for the Integrated Risk Information System (IRIS) Website

All new and major revisions to web pages will be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications will be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the IRIS websites shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <http://www.epa.gov/iris> (or any future aliases this may be called)
- <http://intranet.epa.gov/ncea/iristrack/index.htm> (or any future aliases this may be called)
- <https://cfint.rtpnc.epa.gov/ncea/iristrac/index.cfm>

Sub-Task 2.7, Support for the Provision Peer Reviewed Toxicity Values for Superfund (PPRTVs) Website

All new and major revisions to web pages will be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications will be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the PPRTVs website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <https://www.epa.gov/pprtv> (or any future aliases this may be called)

Sub-Task 2.8, Support for the Risk Assessment (RISK) Website

All new and major revisions to web pages will be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications will be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages that are part of this website shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the RISK website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This sub-task includes providing support to the following website(s):

- <https://www.epa.gov/risk> (or any future aliases this may be called)

Sub-Task 2.9, Support for the Report on the Environment (ROE) Website

All new and major revisions to web pages will be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications will be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages supporting the ROE website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <https://www.epa.gov/report-environment> (or any future aliases this may be called)
- <https://www.epa.gov/roe>
- <https://cfpub.epa.gov/roe>

Sub-Task 2.10, Support for Other NCEA Website

This task is for minor updates to other NCEA web site on an as-needed basis to make these sites compliant or include a new feature. It is assumed that anything requiring substantial support would otherwise require a MOD to generate a new sub-task for this. All new and major revisions to web pages will be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications will be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages supporting these other NCEA website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <http://www.epa.gov/bmds>
- <http://www.epa.gov/dioxin> (or any future aliases this may be called)
- <https://www.epa.gov/erasc> (or any future aliases this may be called)
- <https://www.epa.gov/aboutepa> (as it related to NCEA pages)
- <https://www.epa.gov/healthrisk> (or any future aliases this may be called)
- <https://www.epa.gov/human-health-risk-assessments-hhra> (or any future aliases this may be called)
- <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=20563> (exposure factors program)

Sub-Task 2.11, Support for the Development of New NCEA Websites

The contractor shall be responsible for overseeing updates to the NCEA web sites (listed above) by adhering to the EPA Web guidelines at <http://www.epa.gov/webguide>. The

contractor may be asked to make updates to these based on new technology or EPA Web Guidance as new direction becomes available. Specifically, this task may provide contractor support to provide a range of strategic communications and outreach requests to develop new features to our web sites and databases based on the newest technologies that EPA Web is considering. Code re-use is recommended with any enhance that may affect our web sites.

This task may include the evaluation of Web 2.0 technology to include but not be limited to:

- Development of the NCEA web sites in the newest Agency Web standards and technology, utilizing efficiencies of the latest Web 2.0 technology/applications.
- Development of media (YouTube, podcasts, etc.) to promote the information of NCEA's research.
- Development of on-line training or support web sites for webinars to promote the information of NCEA research.
- Use of XML, Drupal, Twitter, Govdelivery, Blogging, or RSS feeds to promote the use of NCEA research to a wider audience.
- Development of web sites or databases using more sustainable solutions (with technology).
- Development of improved integration and sharing with like systems/databases across Government-wide platforms, in an effort to support data sharing or access via open data initiatives (like NSCEP, SEMS, SI, NARA, Science-Hub, e-Chem portal, Data.gov, etc.).

Deliverables: The contractor shall provide updates to the websites under Task 2 as needed, copying the WACOR on all correspondence regarding major deliverable in the monthly progress report. For estimating purposes only, the contractor shall assume they will provide quarterly reviews and corrections for missing metadata, broken links and ROT on all NCEA Websites; develop & implement improvements or updates to a minimum of two websites annually to a maximum of six websites; and will prepare a minimum of 50 to a maximum of 900 PDFs for posting.

The contractor shall provide Monthly Progress Reports outlining any work performed under this task.

Task 3 - Web Analysis and Summary Reports:

The contractor may be asked to provide two (2) reports produced by analyzing EPA's Web Analytics (<https://www.epa.gov/web-analytics>) for NCEA web sites that would include (1) the results of these tools, and (2) CSRA's recommendations for improvements to be implemented as part of Task 2. This means they will:

- Provide a summary report with information on web site analysis using EPA's tools (Google Analytics, Sitebeam, etc.) as listed on the page <https://www.epa.gov/web-analytics>.
- Perform web site usability testing to improve the use of the site and develop personas for site usage design.
- Provide link checking reports, fix broken links and note external links (as outlined in the webguide) on all the NCEA web sites pages.

Deliverables: The contractor shall provide a consolidated report with these results as a MS Word file and as a 508 compliant PDF. These reports should include web usage statistics (graphs) for all these web sites listed in task 2 and include any other related data. For estimating purposes only, the contractor shall assume they will provide (2) comprehensive reports; they will perform 1 -2 usability tests on the web sites defined in Task 2 using EPA analytical tools listed above; and will make recommendations in theses report that should improve the statistics to these sites by a minimum of 12% over the course of a year.

The contractor shall include in the Monthly Progress Report any work performed under this task.

Task 4 - Technical Consulting:

The contractor shall provide technical Subject Matter Expert (SME) support with expertise to provide guidance on areas of toxicology (when needed), website development, and database administration.

The contractor shall be responsible for providing individual subject matter experts (SME) with expertise to provide technical support in the following areas (on a case-by-case basis):

- Toxicology (Risk Assessment, Dose-response, Hazard Identification, IRIS Assessments, etc.)
- Database Administration and Development (Ajax, Apex, Oracle, Access, SQLplus, MySQL, Solr API, etc.)
- Website Development (Drupal, JavaScript, APIs, PHP, Sharepoint, 508 compliance, etc.)

Under this task the SME may be asked to provide a technical review on any new technology to the website or database design issue related to operating NCEA's websites. This may also include migrating new web products for the NCEA websites (see listed in Task 2) to the EPA environment, database development support, or any website improvements. Technical review/commenting/editing may be necessary before new websites are released to the public.

SME's with a toxicological background will be asked to review implications of updates or improvements in relation to the IRIS website and databases.

Deliverables: The contractor shall provide written correspondence to the WACOR on anything related to this task. For estimating purposes only, the contractor should assume the SME may be asked to attend at a minimum two face-to-face discussions (to a maximum of 25 phone-based technical issues discussions) about the improvements discovered in Tasks 1-3.

The contractor shall include in the Monthly Progress Report any work performed under this task.

IV. SCHEDULE OF DELIVERABLES:

Specific deliverables, by Task, are detailed in the table below. All work will be determined by

technical direction.

The contractor should plan to attend bi-weekly meetings with the WACOR to review work assignments (outlined in the TDs) to discuss details of the work, clarification of requirements, and schedule of deliverables. Anything agreed in these discussions should be documented by the contractor and emailed to the WACOR for confirmation. All deliverables and schedules should be listed in the progress report for official notification of receipt from the EPA.

TASK No.	DELIVERABLE	DATE DUE TO EPA
Task 0 - Workplan Submission		
	Workplan and budget	According to contract
	Monthly progress reports	Monthly
Task 1 – Database Support		
	System scripts & exports	As requested
	Web Analytics	Monthly
Task 2 – Website Support		
	Standard Template Web Design and Development in Drupal	To be determined by written technical direction; an exact date cannot be determined prior to task assignments and management priorities.
	PDF production and 508 Verification	
	Customized Design/ embedded Java as needed	
	Graphic Design	
	PDF-rework	
	Web site staging and deployment	
	Training	
	Reporting on broken links, usability, web analytics	

Task 3 – Web Analytics		
	Run analysis on the web sites listed above (in Task 2) through the EPA's Web Analytics tool suite for review and reporting.	Quarterly
	Summary reports of results should include underlining data and contractor's analysis/recommendations.	As requested

Task 4 – Technical Consulting	
Document assistance and scientific / technical support	To be determined by written technical direction; an exact date cannot be determined prior to receiving stakeholder or management feedback
Support international coordination (attend up to 6 webinars)	
Support for utility SMEs (up to 5 trips)	

V. MISCELLANEOUS:

Software Application Files and Accessibility:

Software application files, if delivered to the Government, shall conform to the requirements relating to accessibility as detailed to the 1998 amendments to the Rehabilitation Act, particularly, but not limited to, § 1194.21 Software applications and operating systems and § 1194.22 Web-based intranet and internet information and applications. See:

<http://www.section508.gov/>

Regarding FITARA, online publications of maps will leverage EPA's GeoPlatform technical architecture, hardware and software, to the fullest extent possible for public search and discovery. Quality assurance and metadata support should adhere to Agency approved Geospatial procedures and standards, see: <https://www.epa.gov/geospatial/geospatial-policies-and-standards>. All geospatial metadata will, as required by OMB, be published in EPA's Environmental Data Gateway which serves Data.gov, see: <https://edg.epa.gov/metadata/catalog/main/home.page>

Preferred text format:	MS Word, 16.0 or higher (Office 2013 or higher)
Preferred presentation format:	Power Point, Office 2013 or higher
Preferred graphics format:	Each graphic is an individual JPG or GIF file, or Adobe Illustrator file
Preferred portable format:	Adobe Acrobat, version DC or higher
Preferred technology:	Drupal, SharePoint, ColdFusion, Apex, Oracle, JavaScript, PHP, Jira, Solr

All products delivered under this work assignment will require 508 compliances (unless an exception is made) and will include metadata for websites developed or PDFs posted to the EPA Website per the EPA web guidance standard (see <http://www.epa.gov/webguide>).

Reporting Requirements:

- Monthly Progress Reports (including a progress evaluation discussion)
- Financial Reports (with table of task and sub-task totals).

VI. TRAVEL:

The contractor shall anticipate no more than two to four face-to-face trips and two (2) SME trips in support of this WA over the duration of the performance period. Travel will be directly related

to the scope of this Work Assignment and support advancement of the work under these Tasks as well as the EPA's Mission to ensure protection of human health and the environment.

VII. MEETINGS, CONFERENCES, TRAINING EVENTS, AWARD CEREMONIES AND RECEPTIONS:

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than \$20,000, shall be obtained by the EPA CL-COR as needed and provided to the Contracting Officer (CO). Work under conference related activities and expenses shall not occur until this approval is obtained and provided by the EPA CL-COR.

VIII. CONTRACTOR IDENTIFICATION:

Contractor personnel shall always identify themselves as contractor employees by name and organization and physically display that information through an identification badge. Contractor personnel are prohibited from acting as the Agency's official representative. The contractor shall refer any questions relating to the interpretation of EPA policy, guidance, or regulation to the CO, CL-COR and/or WACOR.

IX. PRINTING:

All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

X. TECHNICAL DIRECTION:

The Contract level COR or an authorized individual is permitted to provide technical direction. Technical direction must be within the statement of work of the contract and includes: (1) Direction to the contractor which assists the contractor in accomplishing the Statement of Work, (2) Comments on and approval of reports or other deliverables. Technical direction will be issued in writing or confirmed in writing within seven (7) calendar days after verbal issuance.

One copy of the technical direction memorandum will be forwarded to the Contracting Officer and the Contract Level Contracting Officer Representative.

XI. QUALITY ASSURANCE SURVEILLANCE PLAN:

The requirements contained in this WA are considered performance-based, focusing on the Agency's desired results and outcomes. The contractor shall be responsible for determining the most effective means by which these requirements will be fulfilled. In order to fulfill the requirements, the contractor shall design innovative processes and systems that can deliver the required services in a manner that will best meet the Agency's performance objectives. This performance-based requirement represents a challenge to the contractor to develop and apply innovative and efficient approaches for achieving results and meeting or exceeding the

performance objectives, measures, and standards in Attachment 4 of the contract. The Contractor's performance will be reflected in the positive or negative evaluation offered by the Agency in the Contractor Performance Evaluation (CPE) which is evaluated annually (per the "Contractor Performance Evaluation" clause in the contract). The WACOR shall submit a complete annual review of the areas outlined in the Quality Assurance Surveillance Plan (QASP), included in Attachment 4 of the contract, which will then be utilized by the Contract Level Contracting Officer's Representative in preparing the overall evaluations submitted annually in response to the Contractor Performance Evaluation requirements in the contract.

EPA United States Environmental Protection Agency Washington, DC 20460 Work Assignment						Work Assignment Number 03-20				
						<input type="checkbox"/> Other <input type="checkbox"/> Amendment Number:				
Contract Number EP-C-15-012			Contract Period 08/01/2015 To 07/31/2019 Base Option Period Number 3			Title of Work Assignment/SF Site Name Sustainable Materials Mgmt				
Contractor CSRA LLC					Specify Section and paragraph of Contract SOW 3.2, 3.4					
Purpose: <div style="display: flex; justify-content: space-between;"> <div> <input checked="" type="checkbox"/> Work Assignment <input type="checkbox"/> Work Assignment Amendment <input type="checkbox"/> Work Plan Approval </div> <div> <input type="checkbox"/> Work Assignment Close-Out <input type="checkbox"/> Incremental Funding </div> </div>						Period of Performance From 08/01/2018 To 07/31/2019				
Comments: In accordance with clause B.1 of the contract, immediate start is hereby approved for this work assignment beginning on August 1, 2018. If the work plan is not approved within 35 calendar days after receipt of the work plan, the contractor shall stop work.										
<input type="checkbox"/> Superfund Accounting and Appropriations Data <input checked="" type="checkbox"/> Non-Superfund										
Note: To report additional accounting and appropriations data use EPA Form 1900-69A.										
SFO (Max 2) <input type="checkbox"/>										
Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										
Authorized Work Assignment Ceiling										
Contract Period: 08/01/2015 To 07/31/2019 Cost/Fee:						LOE: 0				
This Action:						3,523				
Total:						3,523				
Work Plan / Cost Estimate Approvals										
Contractor WP Dated:						Cost/Fee: LOE:				
Cumulative Approved:						Cost/Fee: LOE:				
Work Assignment Manager Name Wesley Ingwersen <div style="display: flex; justify-content: space-between;"> <div>_____ (Signature)</div> <div>_____ (Date)</div> </div>						Branch/Mail Code: Phone Number: 513-569-7602 FAX Number:				
Project Officer Name Nancy Parrotta <div style="display: flex; justify-content: space-between;"> <div>_____ (Signature)</div> <div>_____ (Date)</div> </div>						Branch/Mail Code: Phone Number: 202-564-5260 FAX Number:				
Other Agency Official Name <div style="display: flex; justify-content: space-between;"> <div>_____ (Signature)</div> <div>_____ (Date)</div> </div>						Branch/Mail Code: Phone Number: FAX Number:				
Contracting Official Name Donna Reinhart <div style="display: flex; justify-content: space-between;"> <div>_____ (Signature)</div> <div>7/19/18 (Date)</div> </div>						Branch/Mail Code: Phone Number: 513-487-2114 FAX Number:				

PERFORMANCE WORK STATEMENT
CSRA EP-C-15-012
Work Assignment No. 03-20
Period of Performance: 8/1/18-7/31/19

I. ADMINISTRATIVE:

A. Title: Sustainable Materials Management Life Cycle Assessment (SMM LCA)

**B. Work Assignment Contracting
Officer's Representative (WACOR):**

Wesley Ingwersen
National Risk Management Research
Laboratory/Land and Materials
Management Division/Life Cycle Decision
Support Branch
26 W. Martin Luther King Dr.
Cincinnati OH 45268
513-569-7602
Ingwersen.wesley@epa.gov

Alternate WACOR:

David Meyer
National Risk Management Research
Laboratory/Land and Materials Management
Division/Life Cycle Decision Support
Branch
26 W. Martin Luther King Dr.
Cincinnati OH 45268
513-569-7194
Meyer.david@epa.gov

C. Quality Assurance:

Task(s) 1 through 7 in this WA require the use of primary and/or secondary data, model development and application, and the development of software, as did work performed under WA 00-20, WA-00-21, and WA 01-20. Consistent with the Agency's Quality Assurance (QA) requirements, the contractor prepared a Project Specific Quality Assurance Project Plan (PQAPP) for WA 00-20. Since no significant changes in data collection are expected between WA 00-20 and the work described in Tasks 1-4, the PQAPP for WA 00-20, G-STD-0030017-QP-1-1, approved 08/30/2016, shall be used for Tasks 1-4. The Work Assignment Manager will revise this QAPP for the review of the contractor. Task 5 in this WA is a continuation of Tasks 1-5 under WA-01-21. The QAPP developed for that task, G-STD-0030044-QP-1-1, shall be used for Task 5. Task 6 in this WA is a continuation of Task 6 under WA-01-21. The QAPP developed for that task, G-STD-0030965-QP-1-0 approved on 4/7/2017, shall be used for Task 6. The Work Assignment Manager will draft a new QAPP for Task 7 to be reviewed and approved by the contractor and EPA before commencement of research activities.

D. Background:

As communities seek to become more sustainable, they are faced with decisions surrounding waste collection and disposal, transportation options, land use planning, and infrastructure needs, all of which can affect climate change and water resources. These decisions are made with the understanding that effective and sustainable environmental protection is linked to human health and quality-of-life, economic opportunity, and community vitality. For example, the processing and production of materials in these communities provide economic opportunity, but also represent sources of environmental emissions. Further, there is a recognized environmental justice component to sustainable materials management (SMM): minority populations and/or

low-income populations bear a disproportionate amount of adverse health and environmental effects associated with the life cycle of the materials of commerce – from resource extraction, material processing/production, transportation, use, recycling, and on to ultimate disposal/destruction. In order to conserve land, minimize land contamination, minimize emissions to air and water, and yield equitable co-benefits throughout a community, materials must be extracted, manufactured and used effectively and efficiently, their application reduced, reused, recycled, and their disposal/management focused on a life cycle basis while preserving their function. The Life Cycle Decision Support Branch (LCDSB) within the National Risk Management Research Laboratory (NRMRL) of US EPA's Office of Research and Development (ORD) is developing the necessary models and tools to support the use of life cycle assessment (LCA) by the Office of Solid Waste and Emergency Response (OSWER), the Office of Water (OW), the Office of Air and Radiation (OAR), and Regional Offices to promote SMM within states and communities.

II. OBJECTIVE:

The contractor shall support the priorities and requirements of the Life Cycle Decision Support Branch as related to the SMM activities.

This work assignment supports the mission of EPA and authority as described in the Resources Conservation and Recovery Act (RCRA). The Sustainable Materials Management strategy designed to meet part of EPA's obligations under this statute describes the need for a life cycle approach.

The intended audience for this project are regions, states and communities seeking to implement sustainable materials management strategies that use a life cycle perspective, as well as other parties looking for data and methods to support life cycle assessment.

This work will be completed commensurate with Sections 3.2 and 3.4 of the Contract Level PWS.

LOE: 3523 HOURS

III. TASK DETAIL:

The contractor shall perform the following tasks:

Task 0 - Work Plan Submission and QAPP review:

The contractor shall prepare a detailed work plan and budget for the accomplishment of the indicated tasks in accordance with the clause Work Assignments (EPAAR 1552.211-74). The work plan shall include a description of (a) proposed staff, (b) the number of hours and labor classifications proposed for each task, broken down to task level, to include both prime contractor and subcontractor labor, and (c) a list of deliverables, with due dates and schedule for deliverables.

The contractor shall review and approve the revision to QAPP, G-STD-0030017-QP-1-1, applicable to Tasks 1-4, to be prepared by the WACOR. Until that time work may proceed on Tasks 1-4 according to the existing QAPP. The contractor shall review and approve the new QAPP, to be prepared by the WACOR, for Task 7, before work proceeds on that task.

The contractor shall use the QAPPs described above in Section I-C to ensure the quality of primary and/or secondary data and any software developed to complete these tasks.

In addition, the contractor shall prepare a statement indicating that this WA is a continuation of WA 2-20. This task also includes monthly progress and financial reports, which are to be submitted pursuant to Attachment 2 of the contract. Monthly financial reports must include a table with the invoice level of effort (LOE) and costs broken out by the tasks in this WA. The monthly progress report shall indicate, in a separate QA section, whether significant QA issues have been identified and how they are being resolved. The contractor shall immediately notify the Contract Level Contracting Officer's representative (CLCOR) Project Officer and EPA WACOR any changes to the collection and analysis of the data is needed and prepare a PQAPP accordingly.

The contractor shall immediately alert the EPA WACOR to any anticipated event under the work assignment which may result in incurring an estimated \$20,000 or more cost, funded by EPA, specific to that event (e.g., meeting or training). Those costs would include travel of prime and consultant personnel, planning and facilitation costs, audio/visual, and rental of venue costs. The EPA WACOR will prepare approval internal paperwork for the event and will advise the contractor when appropriate signatures have been obtained. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

Task 1 – USEEIO Updates, Extensions, and Automation

USEEIO is a model developed under the previous periods of performance in this work assignment. USEPA working with the contractor has also developed state versions of USEEIO. The model combines economic and environmental data at a resolution of ~390 goods and services to characterize direct and indirect environmental and economic effects of those goods and services and associated materials. The economic data are compiled in the form of input-output tables and the environmental data in the form of satellite tables. Recently the modeling effort has evolved from spreadsheets to using code (primarily R) to create the satellite tables and input-output tables, which is archived at <https://github.com/usepa/useeio>. This task is reserved to make updates to those tables, add additional satellite table and input-output table extensions, and further automate the creation of USEEIO and state-based models. These updates may include:

- Updates to the underlying input-output tables based on updated BEA and US Census data
- Extensions of the input-output and satellite tables to model other world regions
- Updates to the environmental satellite accounts based on updated or newly identified sources of environmental data
- Incorporation of new satellite tables for additional environmental resources/emissions
- Incorporation of improved data for state models
- Automation for creation of satellite tables using code

- Data collection for modeling various SMM-related scenarios in USEEIO and state-models
- Addition of uncertainty ranges for satellite table and economic transaction data
- Improved documentation of the model

The specific updates will be identified through written technical direction by the WACOR.

Deliverables:

- USEEIO 2.0 using automated model building approach, incorporating the most recent data available for building the satellite tables
- Code for creating multi-region state-based models for a user-selected state, at the same detailed level of resolution as the USEEIO 2.0.
- Documentation of USEEIO 2.0 updates and state-based models in the form of drafts of sections of peer-reviewed manuscripts and conference presentation slides

Task 2 – Data Analysis Support

As provided by written technical direction from the WACOR, the contractor shall provide general support to EPA LCA researchers on performing data analysis tasks for life cycle assessment for the duration of the period of performance. Data analysis work should be performed primarily in the Python programming languages, and code should be documented and designed for reuse. High-level consulting on the organization and management of code for data analysis shall be provided at the beginning of each data analysis that requires more than 40 hrs of labor to maximize reusability and minimize redundancy in the coding effort.

Deliverable: Technical support for data analysis for the duration of the period of performance.

Task 3 – Support for Scenario Modeling for SMM Strategies in USEEIO

The USEEIO model described in Task 1 provides baseline results for the US or a state. The model was developed with the intention of modeling scenarios involving potential changes to the baseline system through implementation of SMM strategies. Such changes may include technological, structural, or behavior changes in industry or by consumers. Because such changes could potentially reverberate throughout the US or state system, modeling of these changes can be complex. Particularly, because USEEIO is based on underlying economic input-output tables, modeling such scenarios can require econometric methods. In this task, EPA seeks expertise from economists specializing in modeling changes within the input-output framework. EPA will work with the contractor to define generic scenario types and provide insight on how well these scenario types can be modeled within USEEIO. The contractor shall then propose generalized methods that can be used to model those scenarios, and provide support for modeling example scenarios provided by EPA.

Deliverable: Documentation in the form of sections of a peer-review manuscript describing methods for scenario modeling in USEEIO and implementation of one or more examples.

Task 4 – USEEIO API and IOMB Support

In the previous periods of performance for this work assignment, the contractor developed a program for assembly and modeling of the IO models like USEEIO called the IO Model Builder, or IOMB (<https://github.com/USEPA/IO-Model-Builder>). The contractor has also developed an

API that takes the models from the IOMB in the form of Python data types, and makes the results and details of the models publicly available via an API. This web API is used by the SMM tool suite. EPA has a need for continual support for the IOMB and the associated web API, including enhancements that are anticipated in order to provide results needed for USEEIO analysis or the SMM tool suite. EPA will provide detailed requests of updates for the IOMB and the web API, based on stakeholder and management direction, during the period of performance.

Deliverable: Improvements to the IOMB and the associated web API as specified by the WACOR's written technical direction.

Task 5 – openLCA Software and Data Format Enhancements

openLCA is the primarily LCA modeling software used by EPA ORD for LCA studies as well as for LCA data preparation and sharing via the Federal LCA Commons. EPA has supported and collaborated on improvements to openLCA and built additional applications upon openLCA (e.g. WARM, SMM Tool) since 2012. There is a need to make continual improvement and updates to openLCA software to improve its functionality and the ways that it manages and describes data. Specifically, as the international initiative Global LCA Data Access (GLAD) has made recommendations on metadata improvements for LCA data that could be incorporated into openLCA software and the openLCA JSON-LD data format. The EPA is developing an improved master elementary flow list and nomenclature, and all the data and its functionality need to be made fully useable in openLCA software and the JSON-LD format. EPA previously worked with GreenDelta to make improvements to data quality assessment in openLCA. Further improvements are foreseen to be needed to assess model and LCIA data quality. Finally, the advance to openLCA directed by EPA over the last 5 years have not been documented in the peer-review literature, and the contract shall assist EPA with that documentation. Other enhancements to openLCA and the openLCA JSON-LD format shall be made at the request of the EPA WACOR.

Deliverables:

- openLCA software and JSON-LD formats with metadata improvements and improved handling of elementary flows
- Improved data quality management in openLCA software
- Documentation support of openLCA and format enhancements written for one or more peer-review manuscript

Task 6 – Ontology Development Support for the Use of Life Cycle Inventory Data in Exposure Modeling

EPA is currently developing methods to incorporate life cycle inventory data into exposure models for chemical assessment under the Toxic Substance Control Act (TSCA). These efforts involve the use of a resource description framework (RDF) to link data using a vocabulary of data descriptors, often called ontologies or domain models, which give data context and meaning. EPA researchers, as subject matter experts, have been developing ontology pieces to support the seamless integration of data. There is a need to have an ontology expert review and help revise new ontology pieces to make sure they are consistent, both with one another and with existing EPA ontologies. Therefore, the contractor shall provide ontology review and revision for a minimum of two ontology pieces up to a maximum of four ontology pieces covering life cycle

impact assessment data, product manufacturing data, product use data, and product disposal data. Ontology pieces will be designed to connect the data with near and far-field exposure modeling concepts. The EPA WACOR shall provide any necessary reference EPA ontologies upon request for a review.

Milestones

1. Due 90 days after receipt of Work Assignment:

A draft ontology for the first of the four concepts requested by the WACOR with example data to demonstrate its use.

2. Due 120 days after receipt of Work Assignment:

A draft ontology for the second of the four concepts requested by the WACOR with example data to demonstrate its use.

3. Due 150 days after receipt of Work Assignment:

A draft ontology for the third of the four concepts requested by the WACOR with example data to demonstrate its use. If the WACOR does not make such a request, this milestone will not be applicable.

4. Due 180 days after receipt of Work Assignment:

A draft ontology for the fourth of the four concepts requested by the WACOR with example data to demonstrate its use. If the WACOR does not make such a request, this milestone will not be applicable.

Deliverable:

Final ontology pieces for all concepts requested by the WACOR.

Task 7 - Exploring Options for a More Efficient LCA Data Pipeline

The EPA has been collaborating with other Federal Agencies, the Global Network of LCA databases (GLAD), and the wider LCA community in developing tools and systems to enable and improve life cycle inventory data availability and interoperability. This task builds upon that history to further improve the LCA data creation process and data interoperability. However, there is a need to make this process more robust and efficient – to improve the LCI data pipeline. The predominant pathway used by EPA and some of the other federal agencies has been to create unit process data in an Excel template (the Federal LCA Commons Life Cycle Inventory template), and import those data into openLCA software for future editing and for linkage/ harmonization with existing data. This pathway provides one option but does not provide the best pathway for all types of unit processes. Tools have not yet been developed to include the development of full product systems to enable system analysis.

There is not a fully described procedure for creating life cycle inventory data in use by the Federal LCA Commons working group. Various guidelines and metadata requirements have recently been adopted for LCI, and an elementary flow list is being created. But a challenge remains to efficiently integrate these guidelines into the LCI development procedure.

In this task, the contractor shall explore ways to create and combine life cycle inventory data to create complete and fully-annotated life cycle models or product systems that are capable of generating life cycle results with a provided impact method. The models should be able to be imported into openLCA software.

Using a sample set of complete and incomplete LCI processes and full product system models, various pathways and data formats shall be tested in a controlled testing and evaluation procedure like what was done to test Federal LCI data interoperability (Ingwersen 2016).

EPA will provide the contractors with identify set of data sources, but these are expected to include: existing unit processes in the Federal LCA Commons Life Cycle Inventory template; existing LCI data in JSON-LD format such as USEEIO, LCI exported from openLCA software; LCI downloaded from the GLAD prototype, chemical inventory data generated using EPA's rapid LCI approach in RDF format, and potentially data exported from other software (e.g. Brightway, SimaPro, Gabi). This shall include partially complete unit processes (incomplete in terms of metadata), complete unit processes, and full product systems.

The contractor working with EPA shall create a set of metrics to use for testing the efficacy of data creation and transfer into LCA software, including such issues as format compatibility, ability to be converted, harmonized, completeness of data transferred, sufficient metadata inclusion, etc.

To accomplish this task, new prototype procedures (scripts) may be developed to test data combination and conversion. Some of the exploratory data formats should be existing formats, including ILCD and JSON-LD formats. Other possibilities are extending the formats or defining new formats. Consideration shall be given to a product system description roadmap recently published by a SETAC working group (Kuczenski et al. 2018). This could include testing of one or more prototypes for product system schemas.

The contractor is encouraged to draw upon existing scripts and tools available in open repositories like github, as well as develop or test new ideas, within the time available. The contractor shall work with EPA to agree to all data and existing datasets to be used in the evaluation, the pathways, tools and data formats/schemas to be used, and the metrics to be used to evaluate their effectiveness, and roles of all team members, before commencing the evaluation and documentation of the results.

EPA will provide file sharing and version control system resources to facilitate collaboration.

Deliverables

All schemas, scripts, or tools used to develop the project shall be posted to the version control system specified by EPA.

A draft article for a peer-review journal shall be provided describing the procedures and the test results. The article may encompass all testing or only include a subset of testing and analysis most suitable for an international community of practitioners.

Reference

- Ingwersen WW (2015) Test of US federal life cycle inventory data interoperability. *Journal of Cleaner Production* 101:118-121. doi:<http://dx.doi.org/10.1016/j.jclepro.2015.03.090>
- Kuczenski B, Marvuglia A, Astudillo MF, Ingwersen WW, Satterfield B, Evers DP, Koffler C, Navarre T, Amor B, Laurin L (2018) LCA capability roadmap—Product system model description and revision. *International Journal of Life Cycle Assessment* doi:10.1007/s11367-018-1446-8

IV. SCHEDULE OF DELIVERABLES:

Specific deliverables, by Task, are detailed in the table below. All work will be determined by technical direction.

This work requires experience in the USEEIO model, advanced data analysis using R or Python, the IO Model Builder, and ontology development for chemical lineage modeling.

TASK No.	DELIVERABLE	DATE DUE TO EPA
Task 0 - Workplan Submission		
	Workplan and budget	According to contract
	Monthly progress reports	Monthly
Task 1 - USEEIO Updates, Extensions, and Automation		
	USEEIO 2.0	6/30/2019
	State model creation code	6/30/2019
	Documentation of USEEIO improvements	7/31/2019
Task 2 – Data Analysis Support		
	Technical support for data analysis in response to each request	To be determined by written technical direction.
Task 3 – Support for Scenario Modeling for SMM Strategies in USEEIO		
	Documentation in the form of sections of a peer-review manuscript describing methods for scenario modeling in USEEIO	June 30, 2019
Task 4 – USEEIO API and IOMB Support		
	Improvements to the IOMB and the associated web API	To be determined by written technical direction; an exact date cannot be determined prior to receiving stakeholder or management feedback
Task 5 – openLCA Software and Data Format Enhancements		
	openLCA software and JSON-LD formats with metadata improvements and improved handling of elementary flows	To be determined by written technical direction; an exact date cannot be determined prior to receiving stakeholder feedback and completion of Fed LCA

	Master Elementary Flow List
Improved data quality management in openLCA software	To be determined by written technical direction; an exact date cannot be determined prior to determination of data quality methods
Documentation support of openLCA and format enhancements written for peer-review	June 30, 2019
Task 6 – Ontology Support for Chemical Lineage Modeling	
Exposure ontology components	July 30, 2019
Task 7 - Exploring Options for a More Efficient LCA Data Pipeline	
Draft article for a peer-review journal	200 days after commencement of task

V. MISCELLANEOUS:

Software Application Files and Accessibility:

Software application files, if delivered to the Government, shall conform to the requirements relating to accessibility as detailed to the 1998 amendments to the Rehabilitation Act, particularly, but not limited to, § 1194.21 Software applications and operating systems and § 1194.22 Web-based intranet and internet information and applications. See: <http://www.section508.gov/>

The EPA WACOR shall identify which of delivered products will require 508 compliance.

VI. TRAVEL

The contractor should anticipate up to 6 trips over the duration of the performance period for in-person meetings or conferences; to be determined at the discretion of the WACOR. Travel will be directly related to the scope of this Work Assignment and support advancement of the work under Tasks 1, 2, 5, and 6 as well as the EPA's Mission to ensure protection of human health and the environment.

VII. MEETINGS, CONFERENCES, TRAINING EVENTS, AWARD CEREMONIES AND RECEPTIONS

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more

than \$20,000, shall be obtained by the EPA CLCOR as needed and provided to the Contracting Officer (CO). Work under conference related activities and expenses shall not occur until this approval is obtained and provided by the EPA CLCOR.

VIII. CONTRACTOR IDENTIFICATION

Contractor personnel shall always identify themselves as contractor employees by name and organization and physically display that information through an identification badge. Contractor personnel are prohibited from acting as the Agency's official representative. The contractor shall refer any questions relating to the interpretation of EPA policy, guidance, or regulation to the CO, CLCOR and/or WACOR.

IX. PRINTING

All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

X. TECHNICAL DIRECTION

The Contract level COR or an authorized individual is permitted to provide technical direction. Technical direction must be within the statement of work of the contract and includes: (1) Direction to the contractor which assists the contractor in accomplishing the Statement of Work, (2) Comments on and approval of reports or other deliverables. Technical direction will be issued in writing or confirmed in writing within five (5) calendar days after verbal issuance. One copy of the technical direction memorandum will be forwarded to the CO and the CLCOR.

XI. QUALITY ASSURANCE SURVEILLANCE PLAN:

All task(s) identified in the performance work statement above are subject to review and approval by the EPA WACOR based on the general guidelines of the contract quality assurance surveillance plan (Attachment 4 of the contract) regarding: Programmatic, cost control, timeliness/deliverables, and document development standards.